

Fig. 3

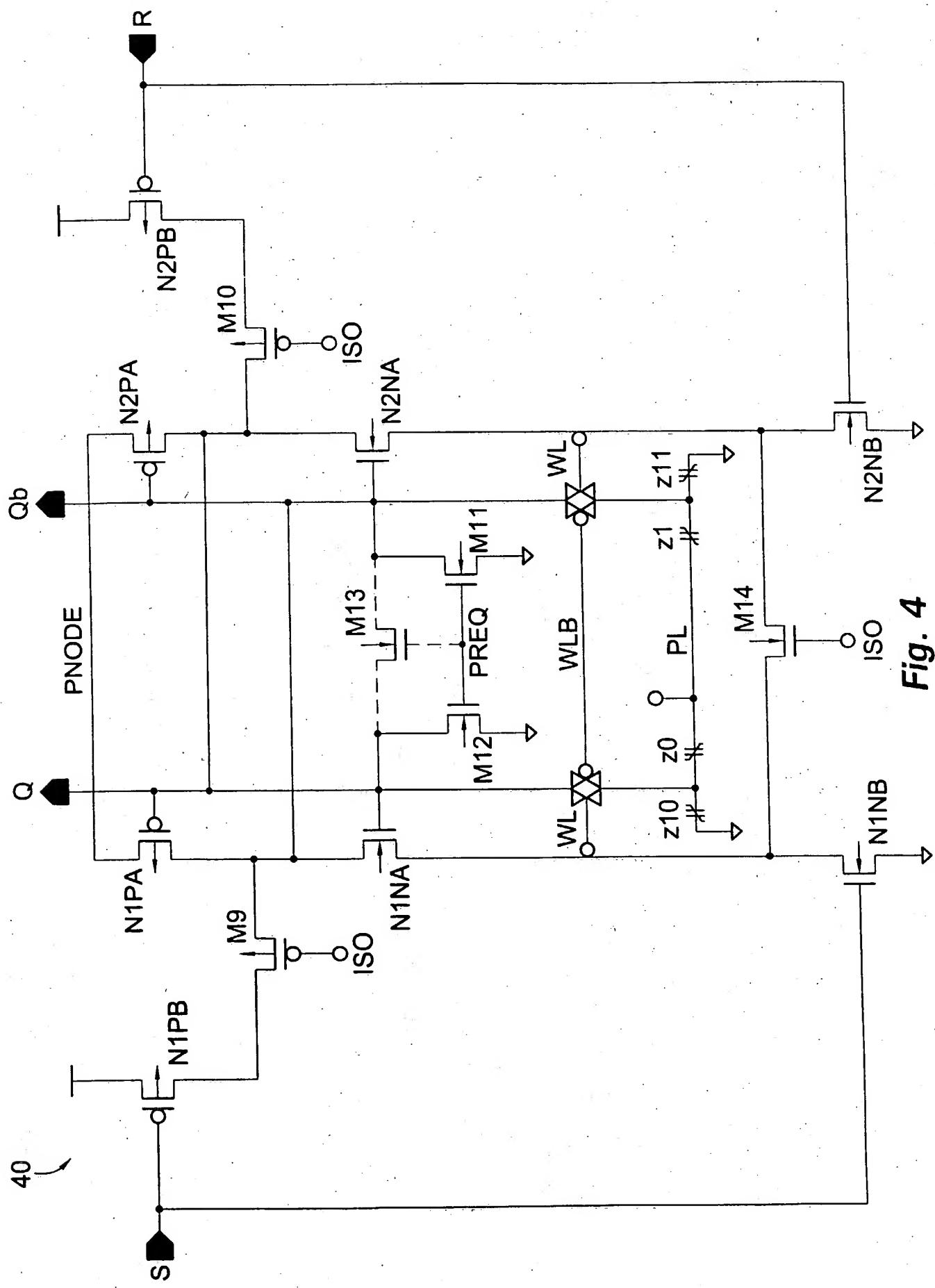


Fig. 4

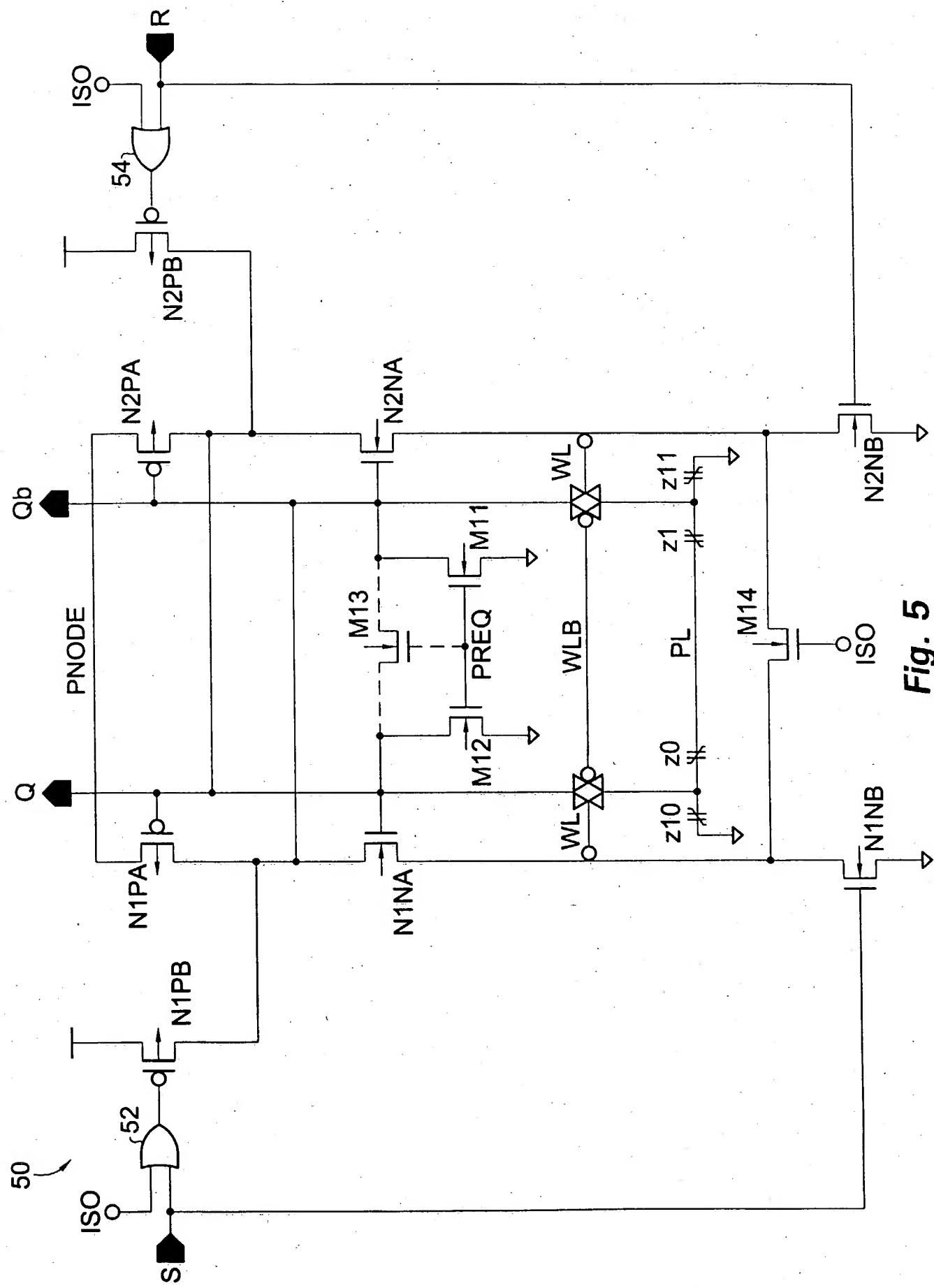


Fig. 5

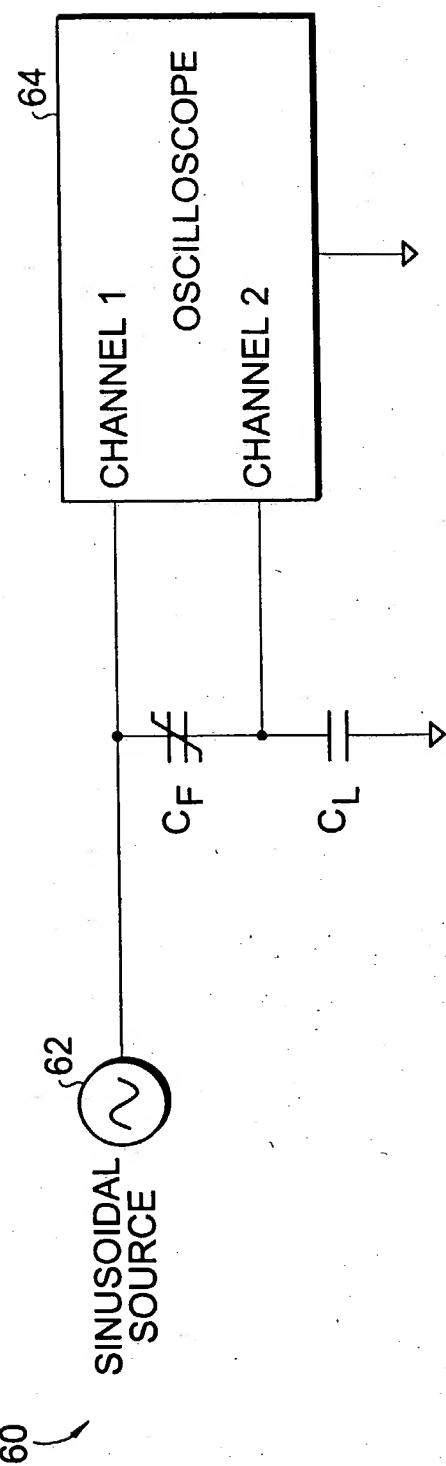


Fig. 6

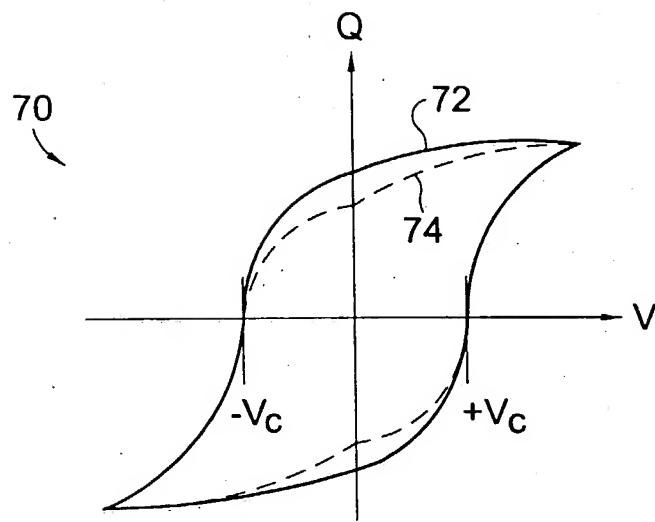


Fig. 7

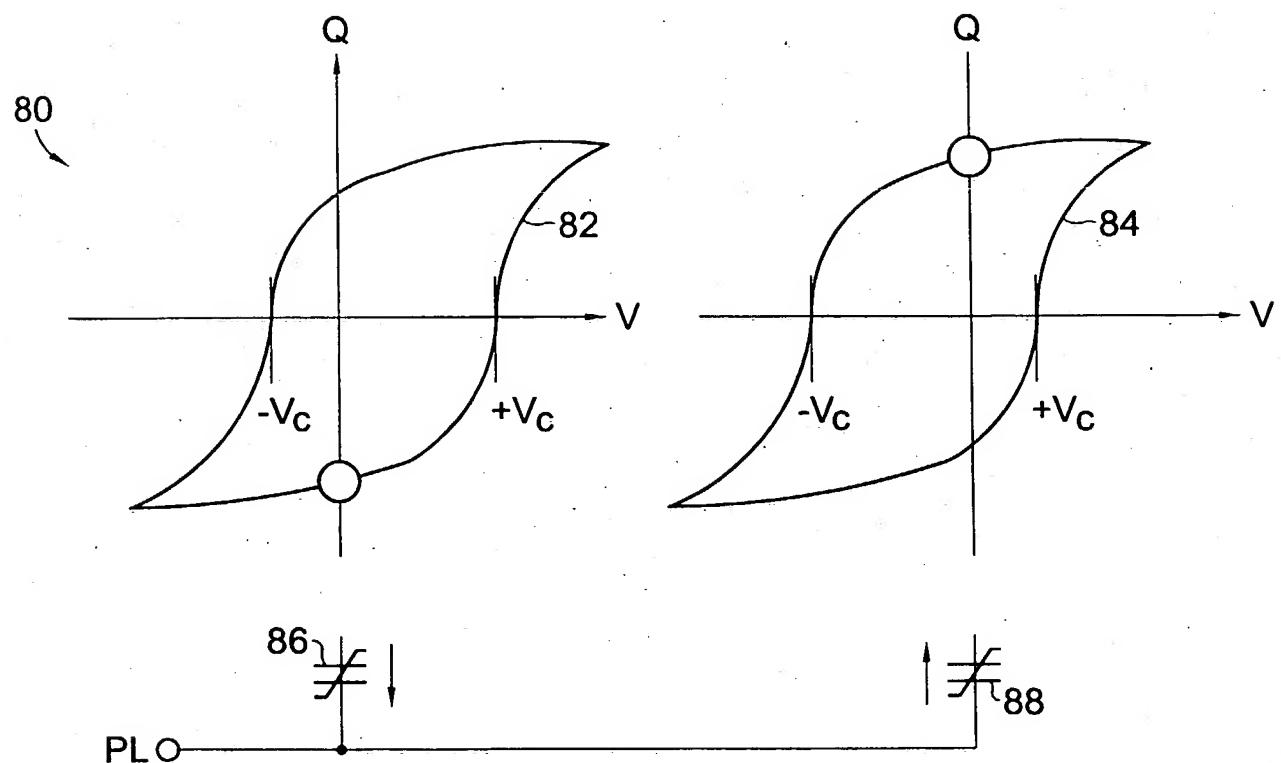


Fig. 8

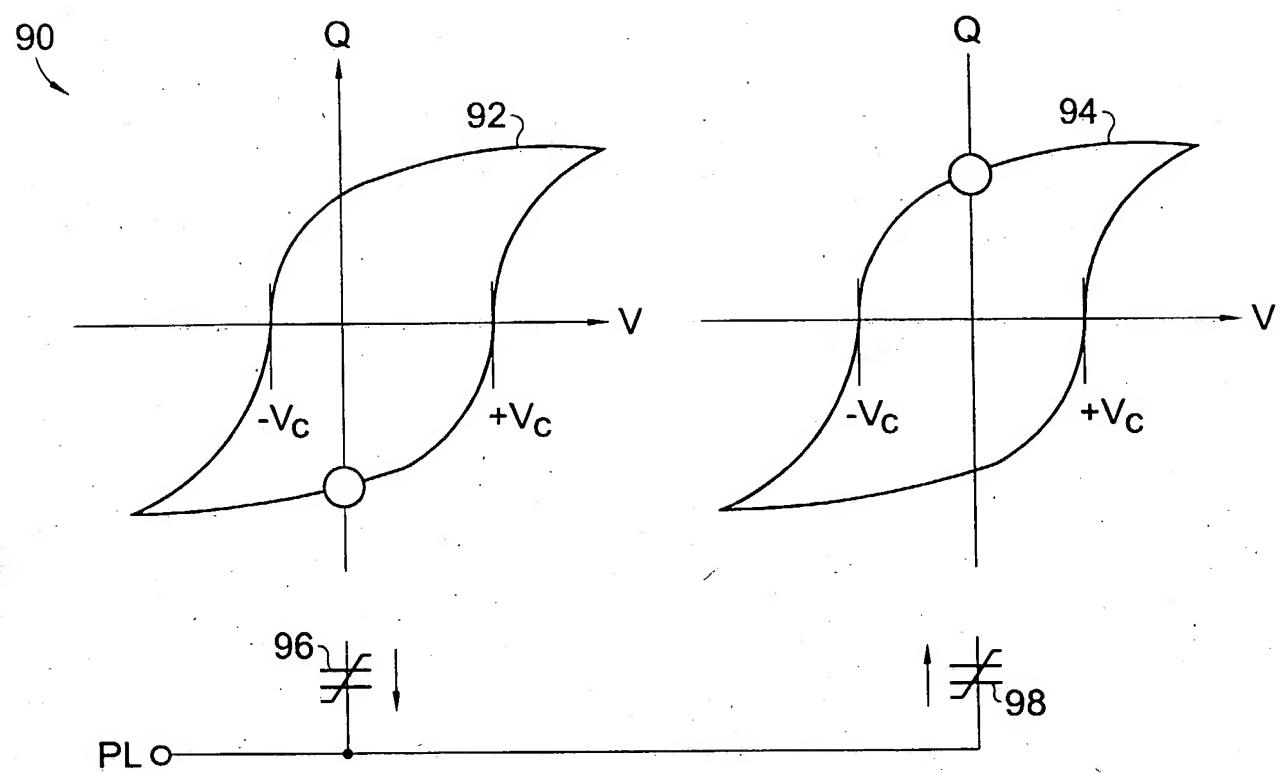
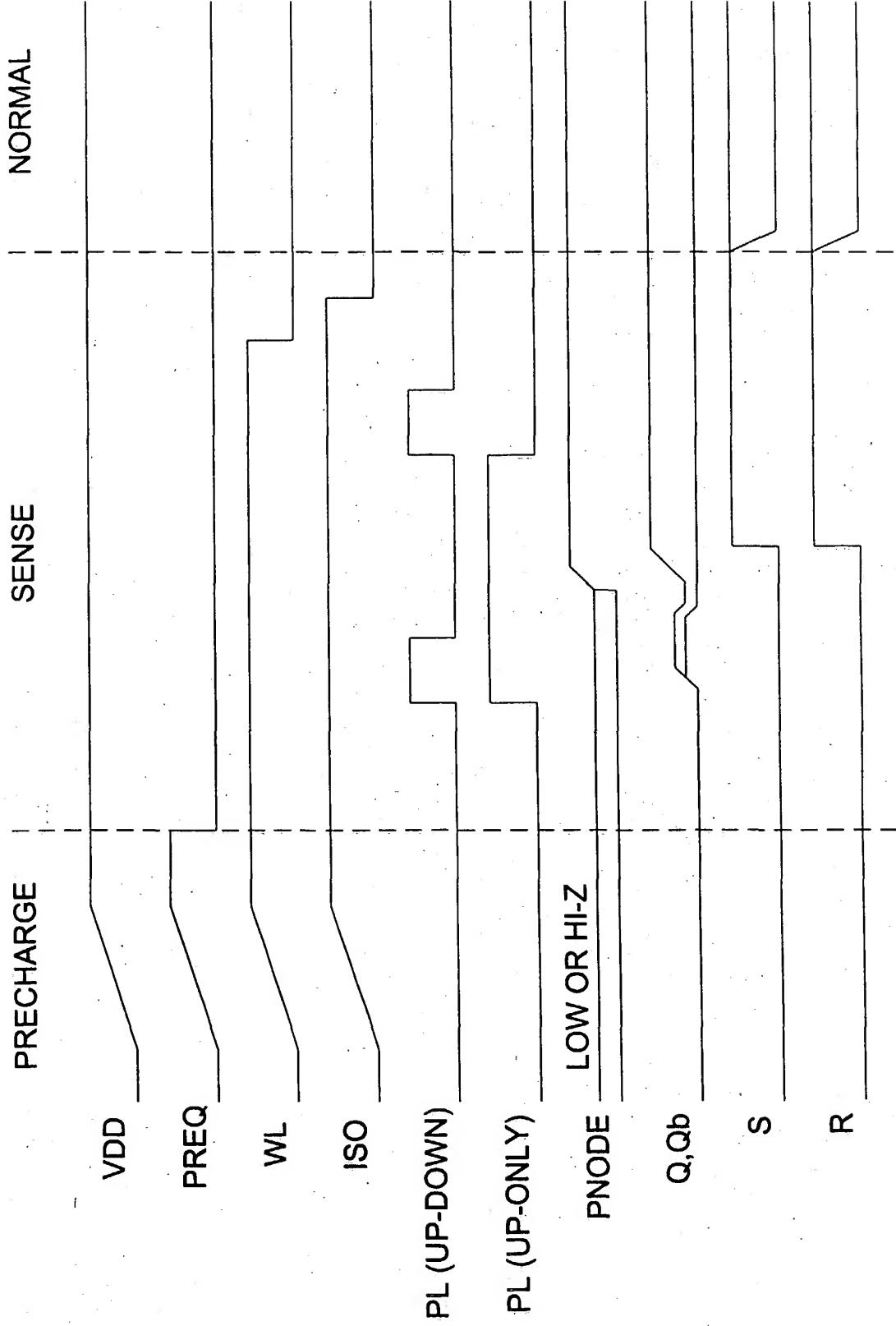


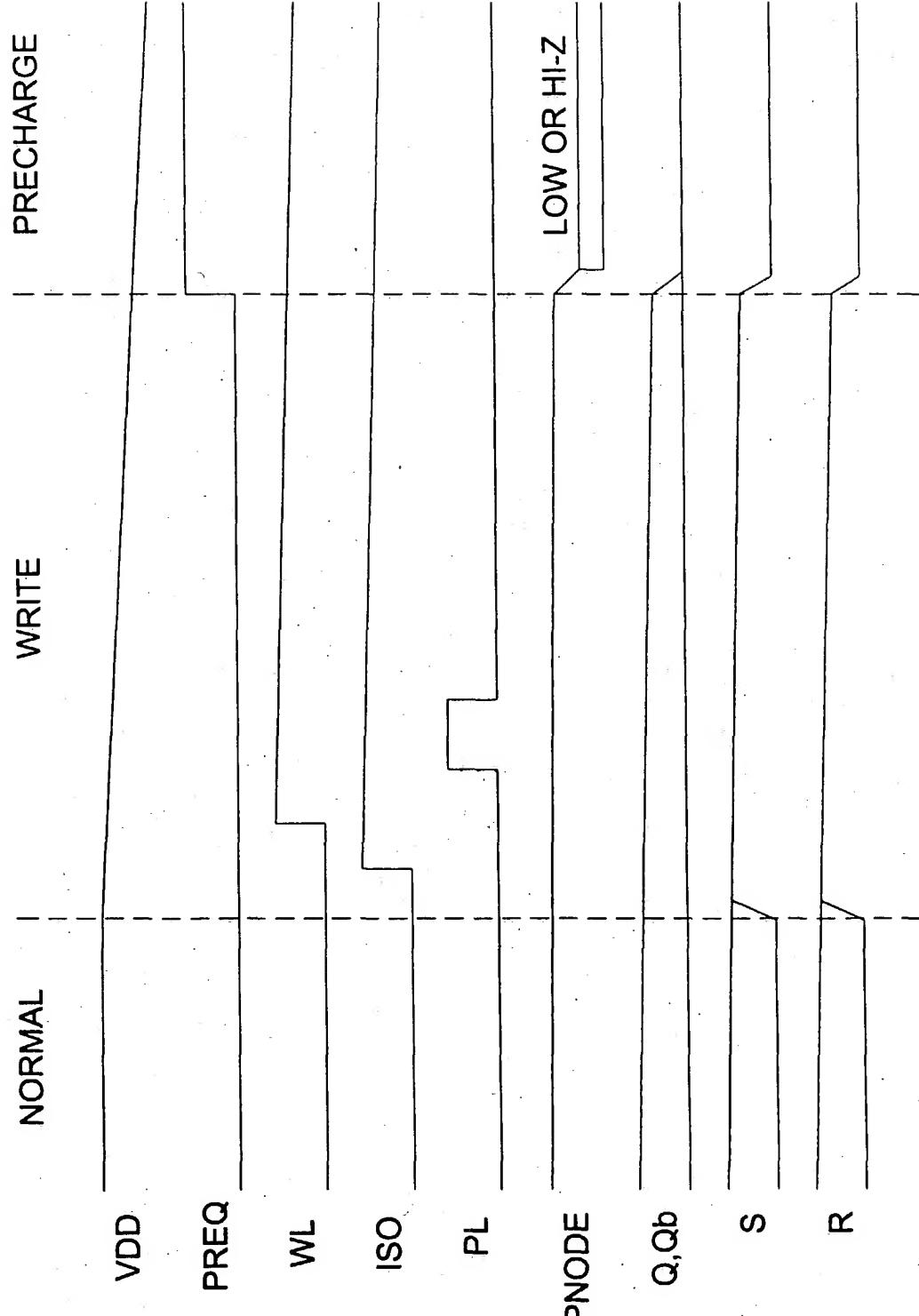
Fig. 9

100

NAND NON-VOLATILE SR FLIP-FLOP POWER-UP TIMING



## NAND NON-VOLATILE SR FLIP-FLOP POWER-DOWN TIMING



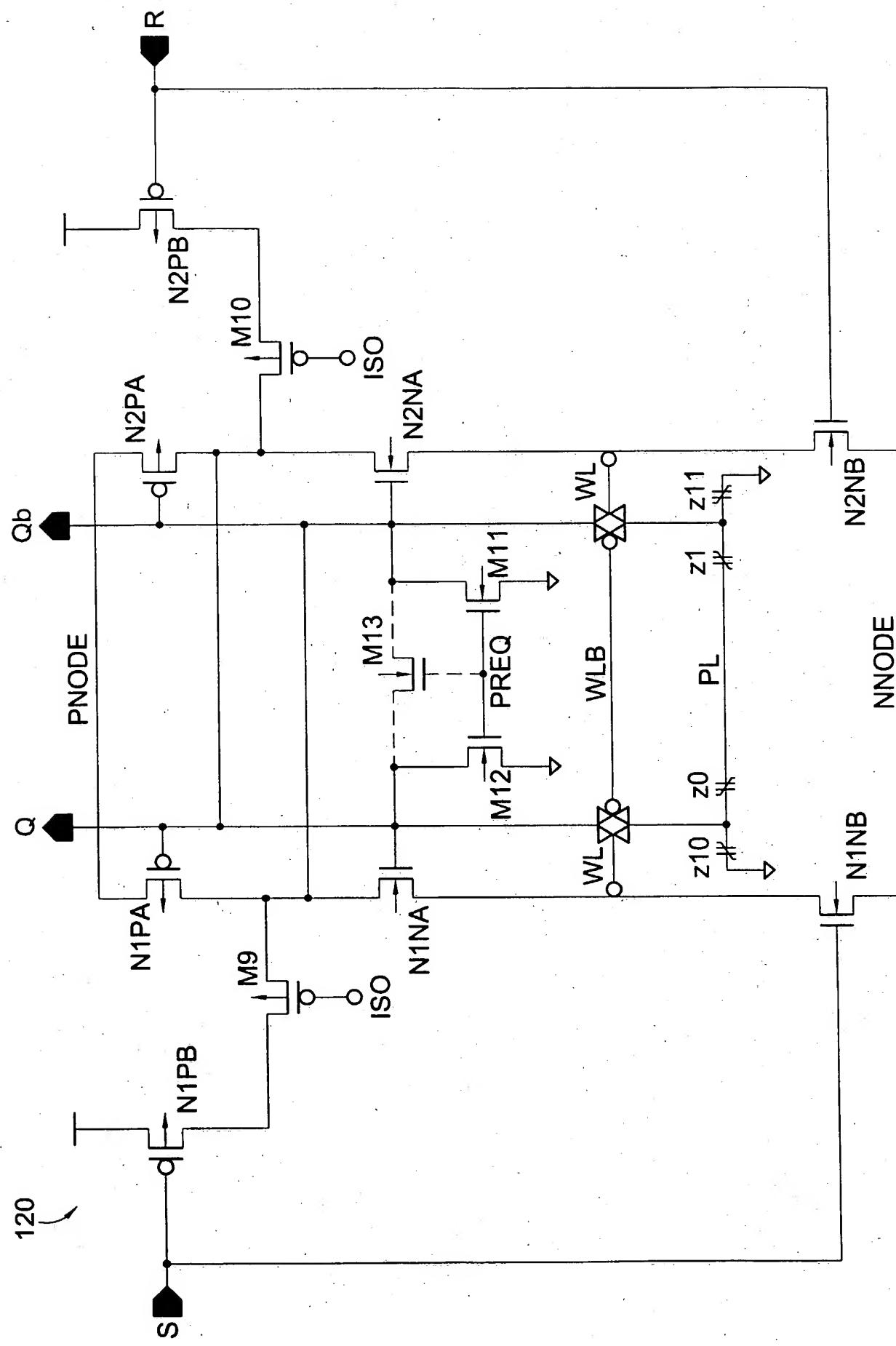


Fig. 12A

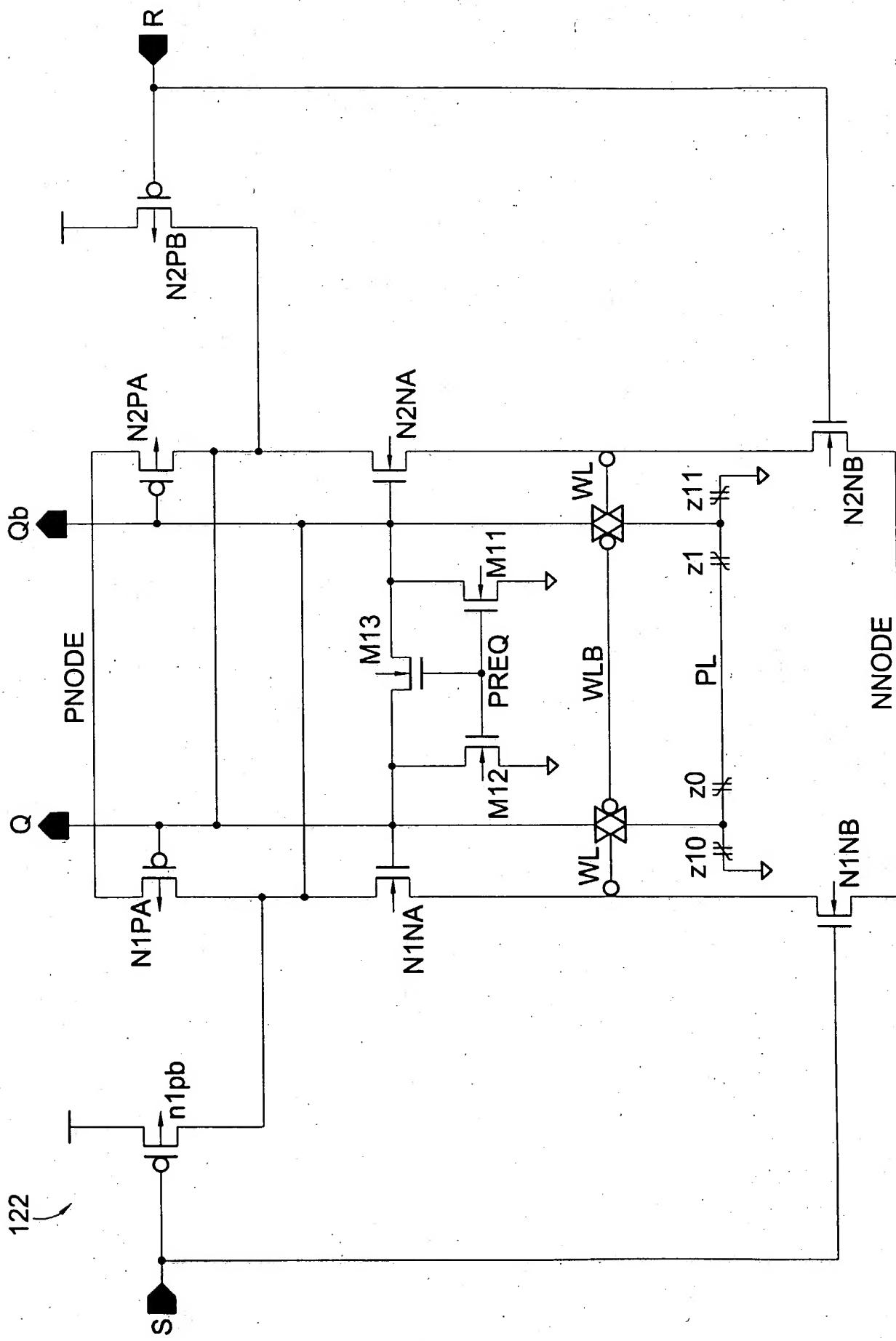
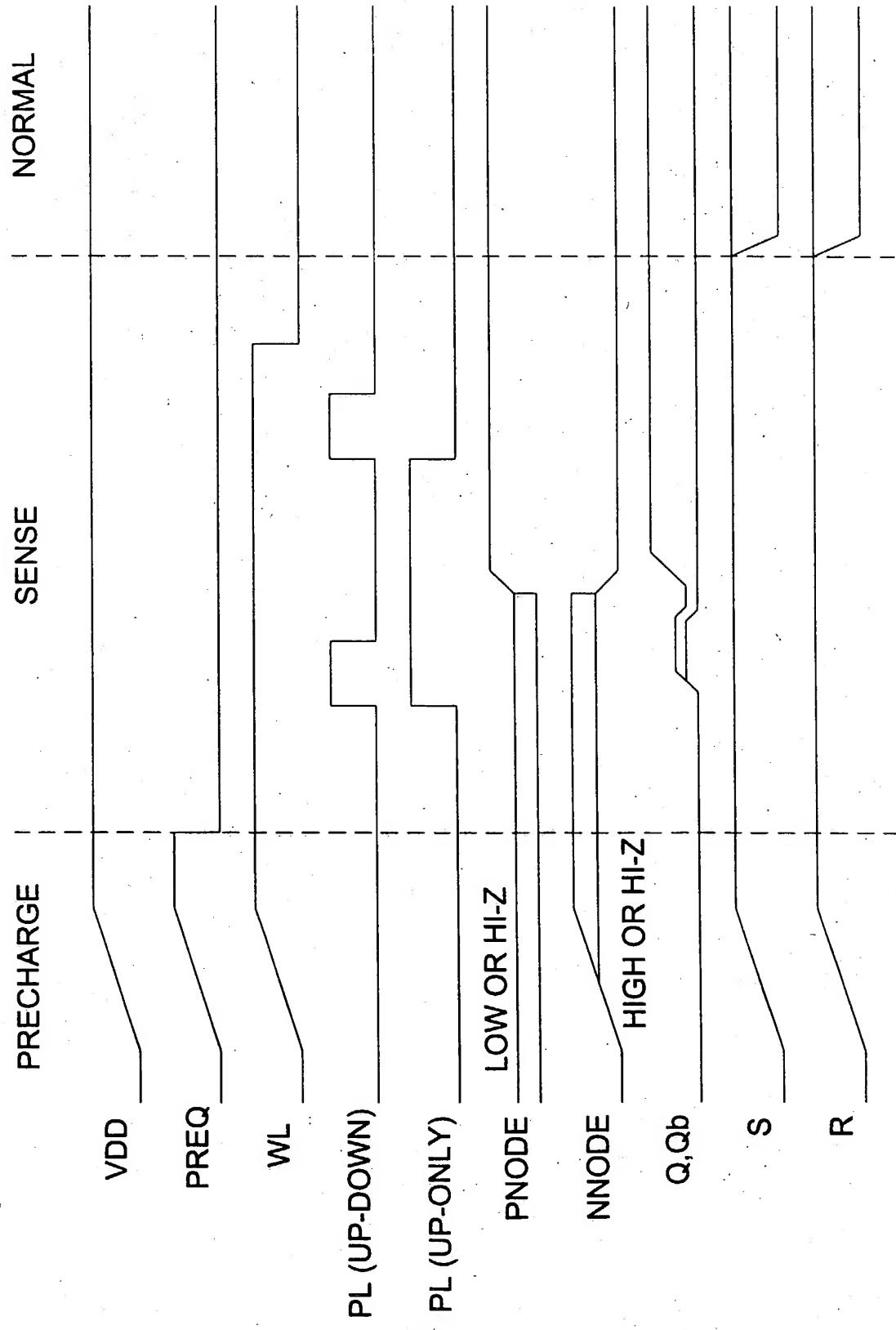


Fig. 12B



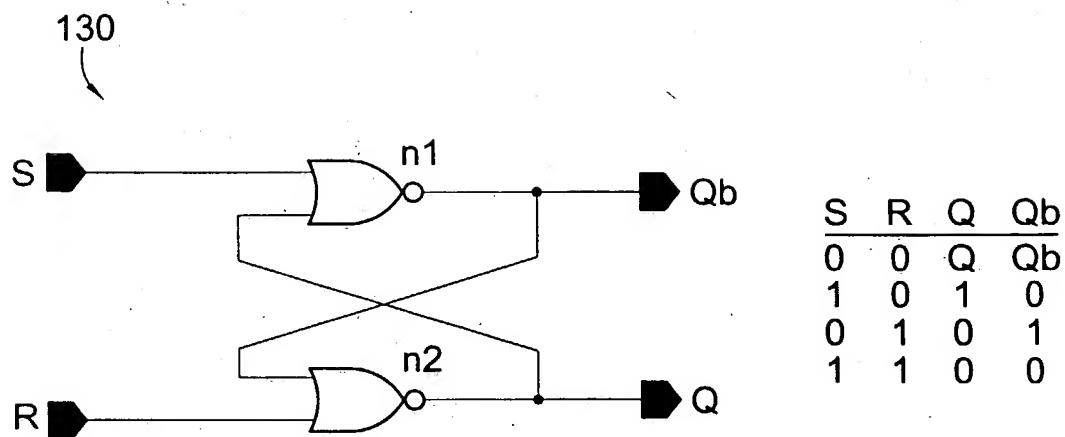


Fig. 13

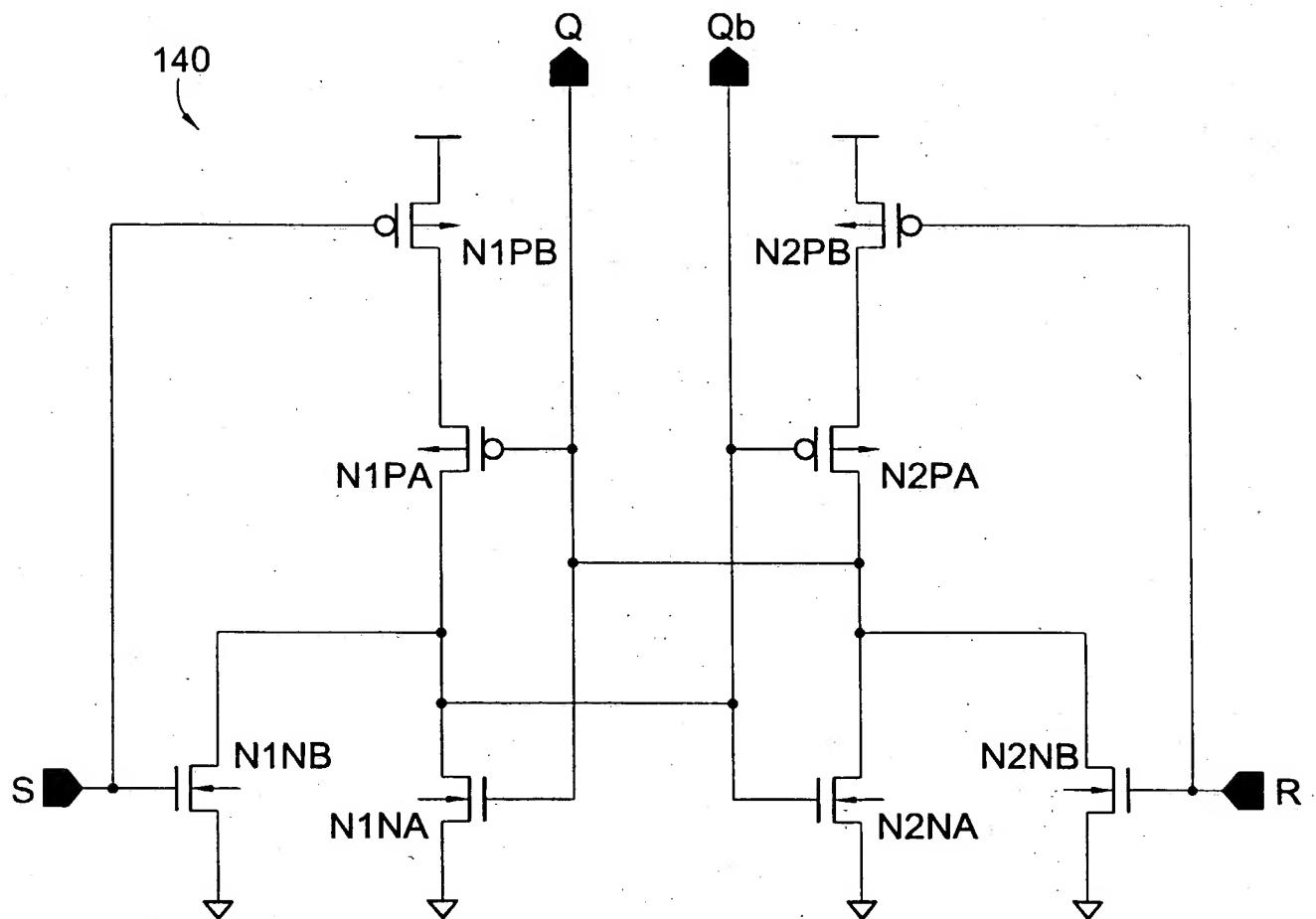


Fig. 14

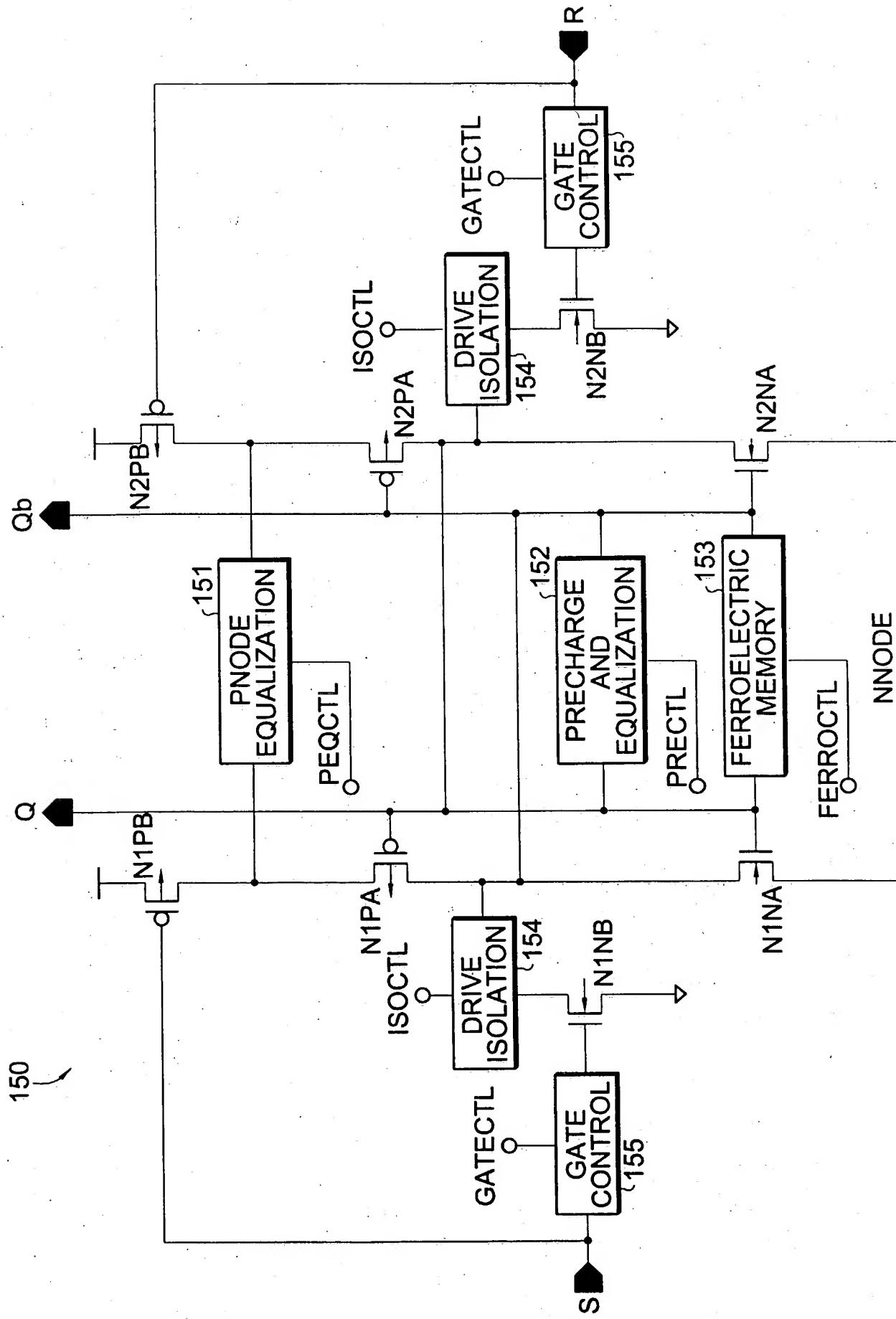


Fig. 15

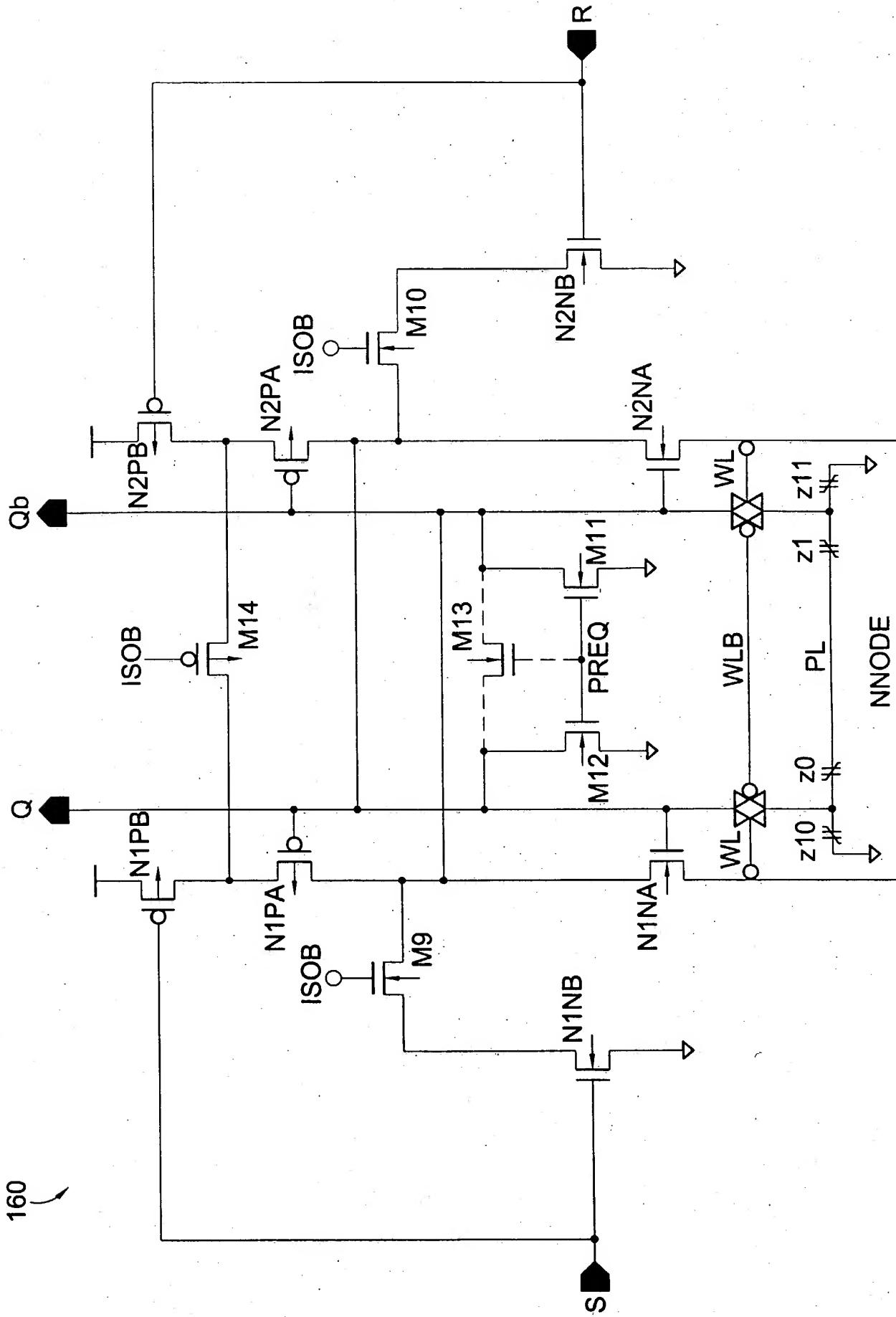


Fig. 16

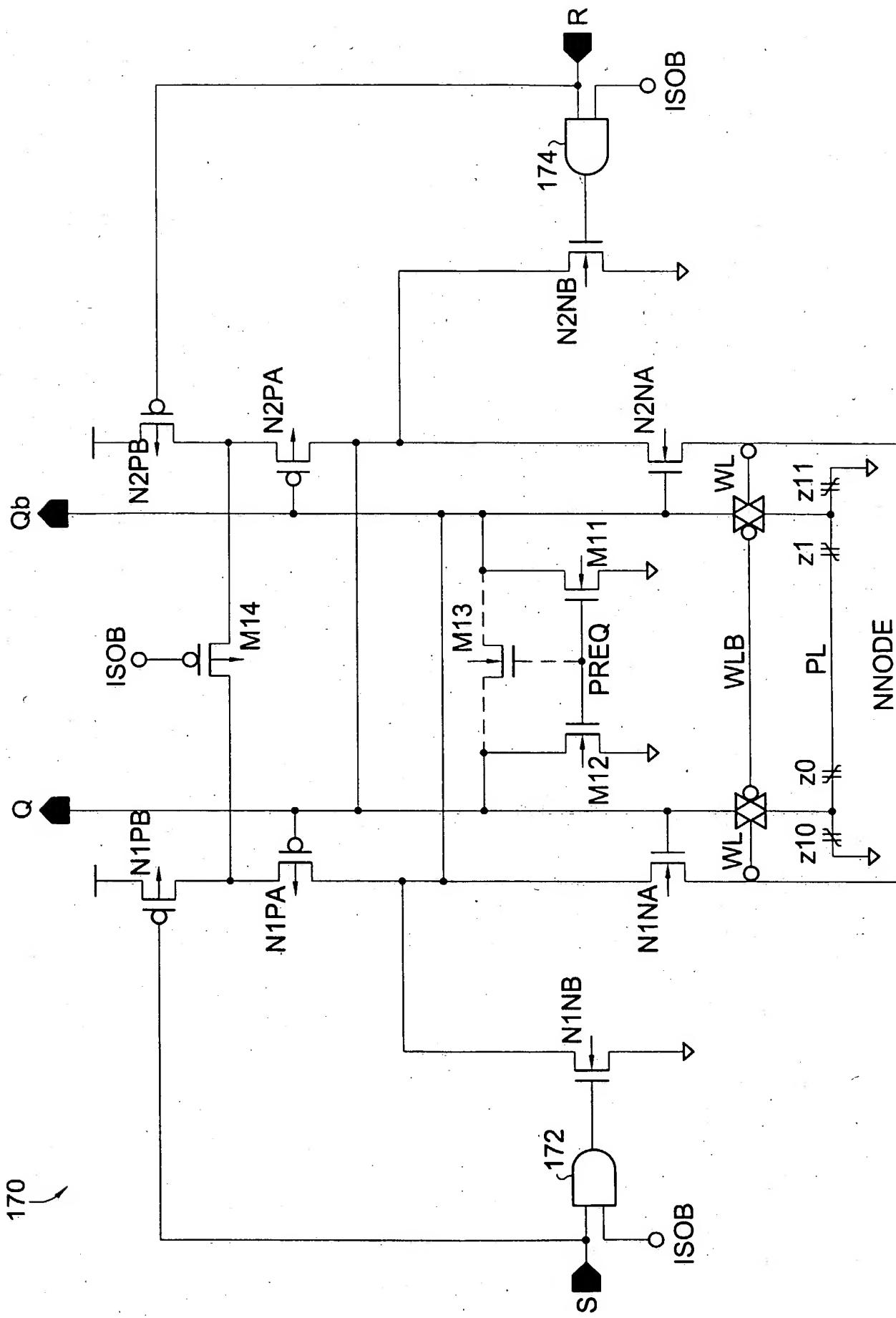
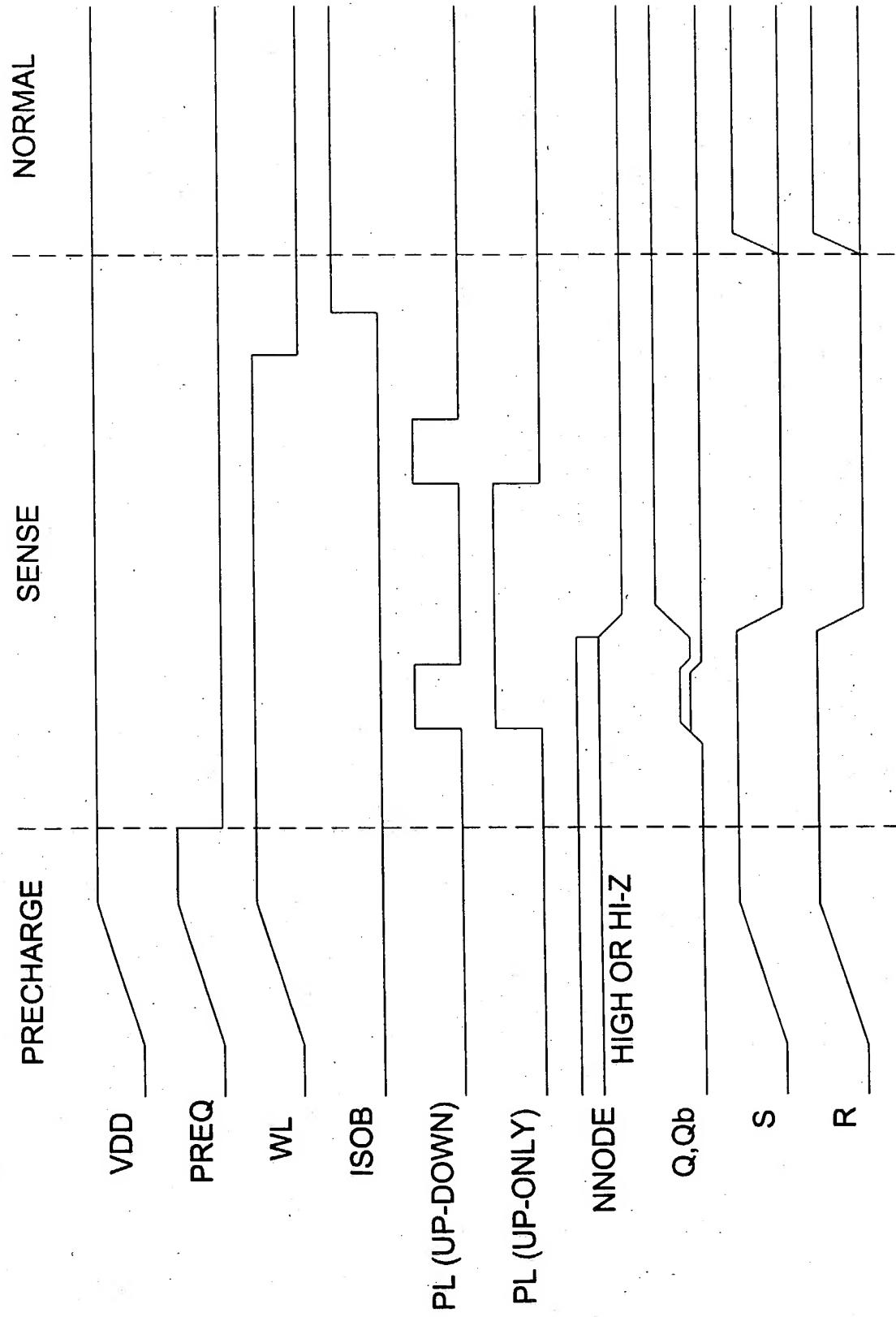
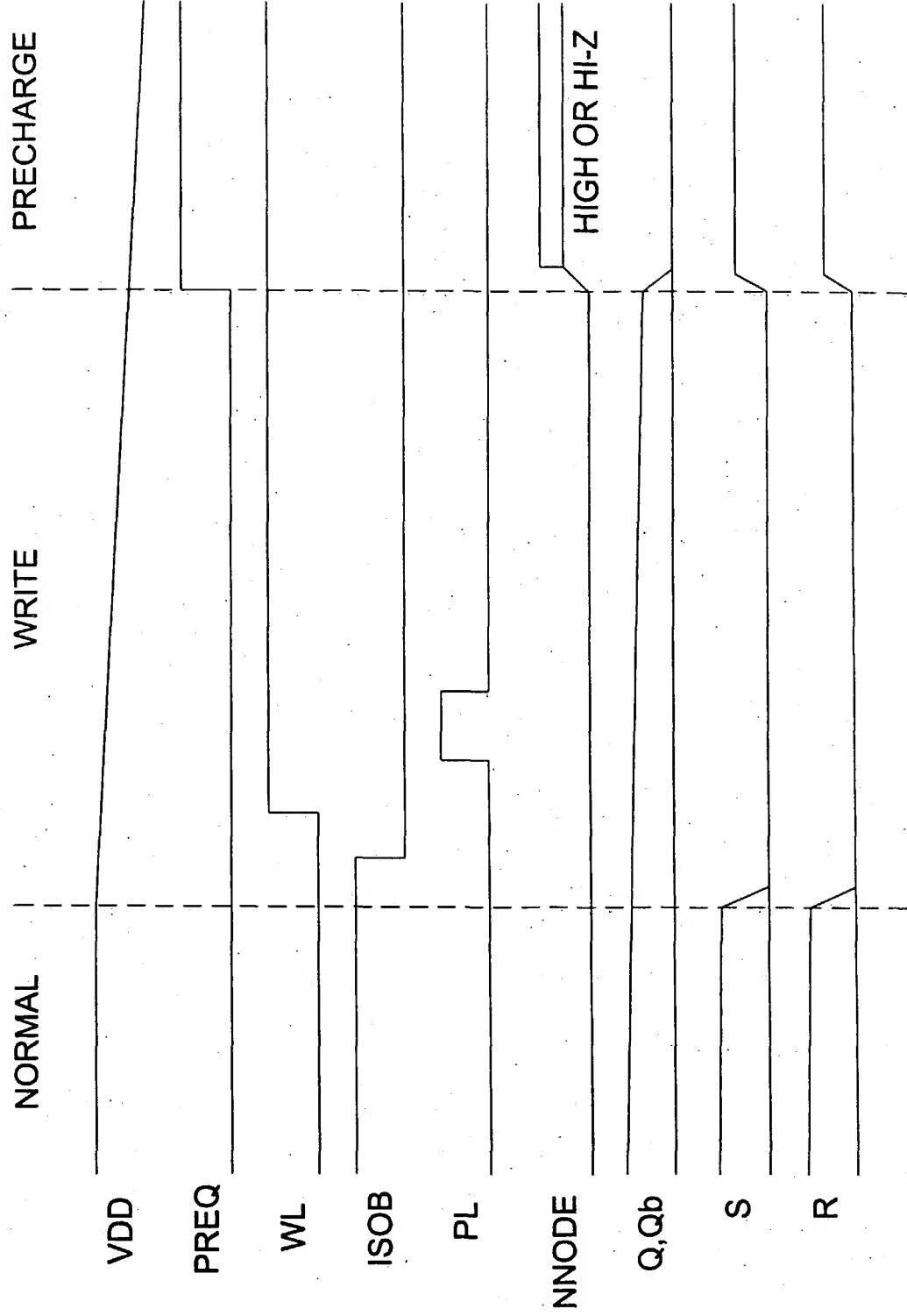


Fig. 17

## NOR NON-VOLATILE SR FLIP-FLOP POWER-UP TIMING



## NOR NON-VOLATILE SR FLIP-FLOP POWER-DOWN TIMING



200

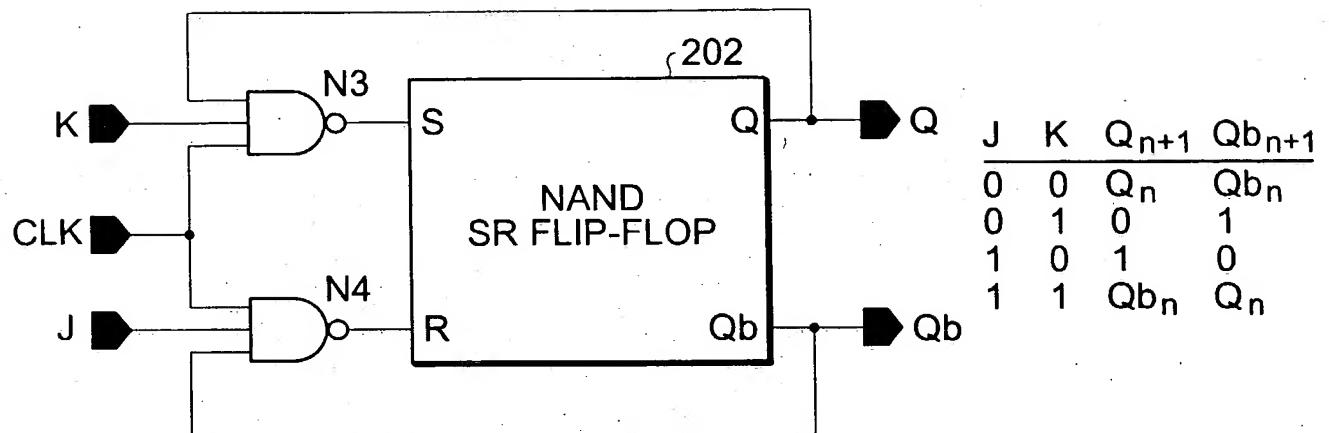


Fig. 20

210

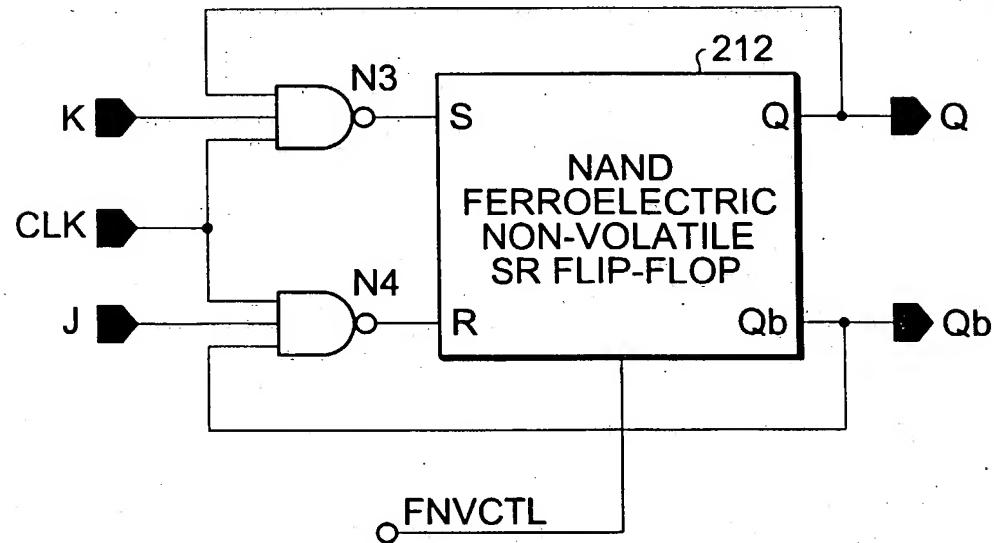


Fig. 21

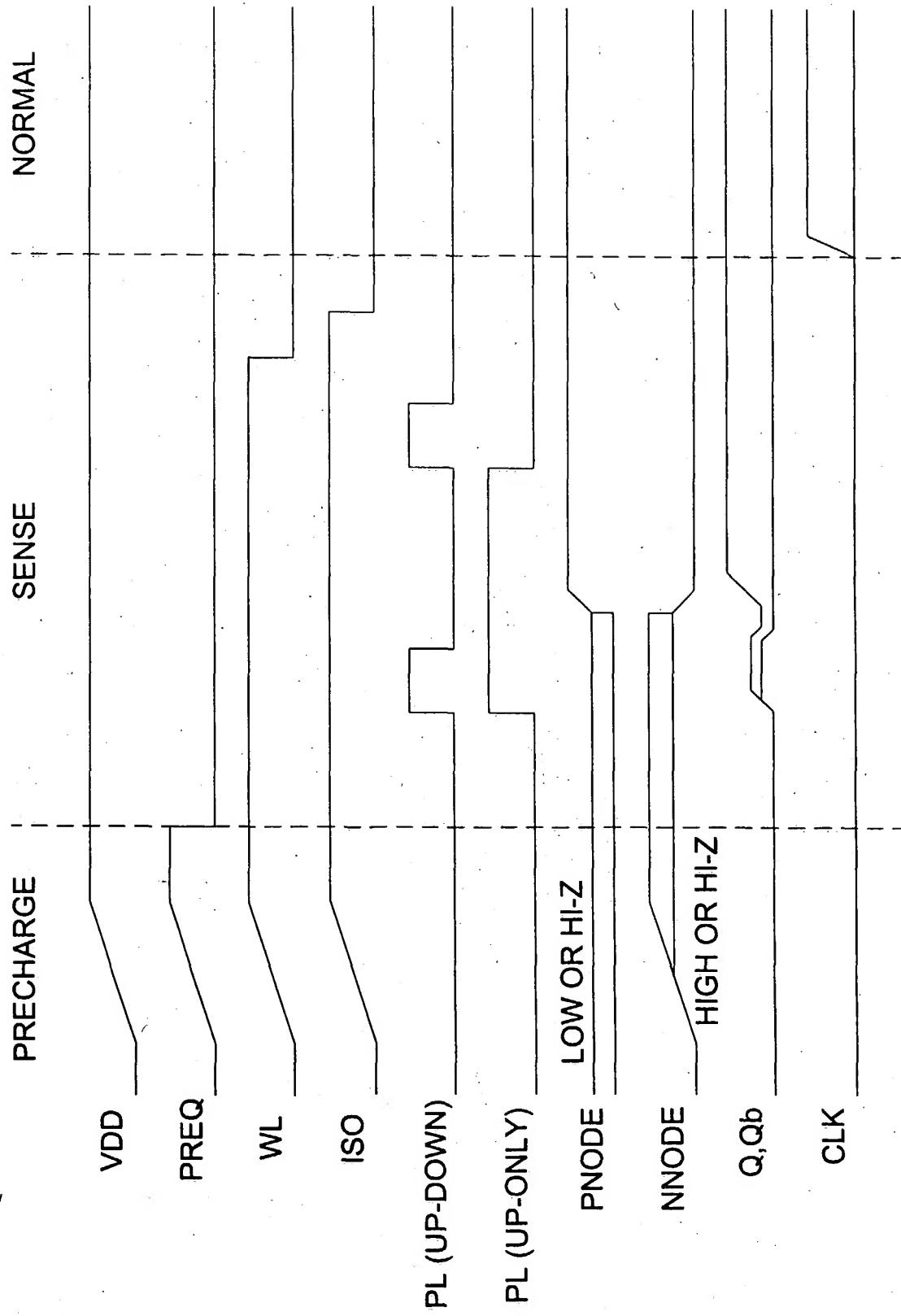


Fig. 22

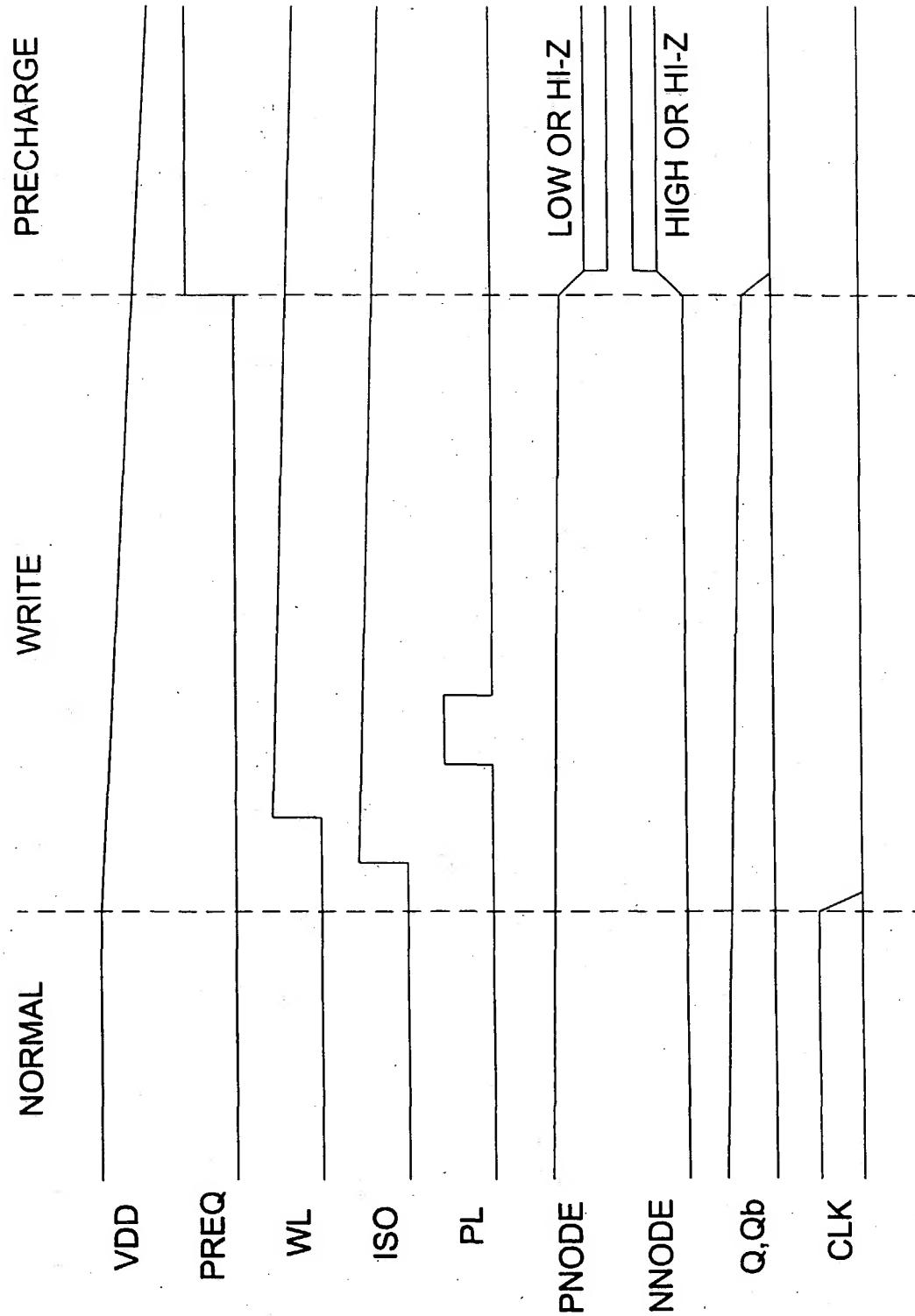


Fig. 23

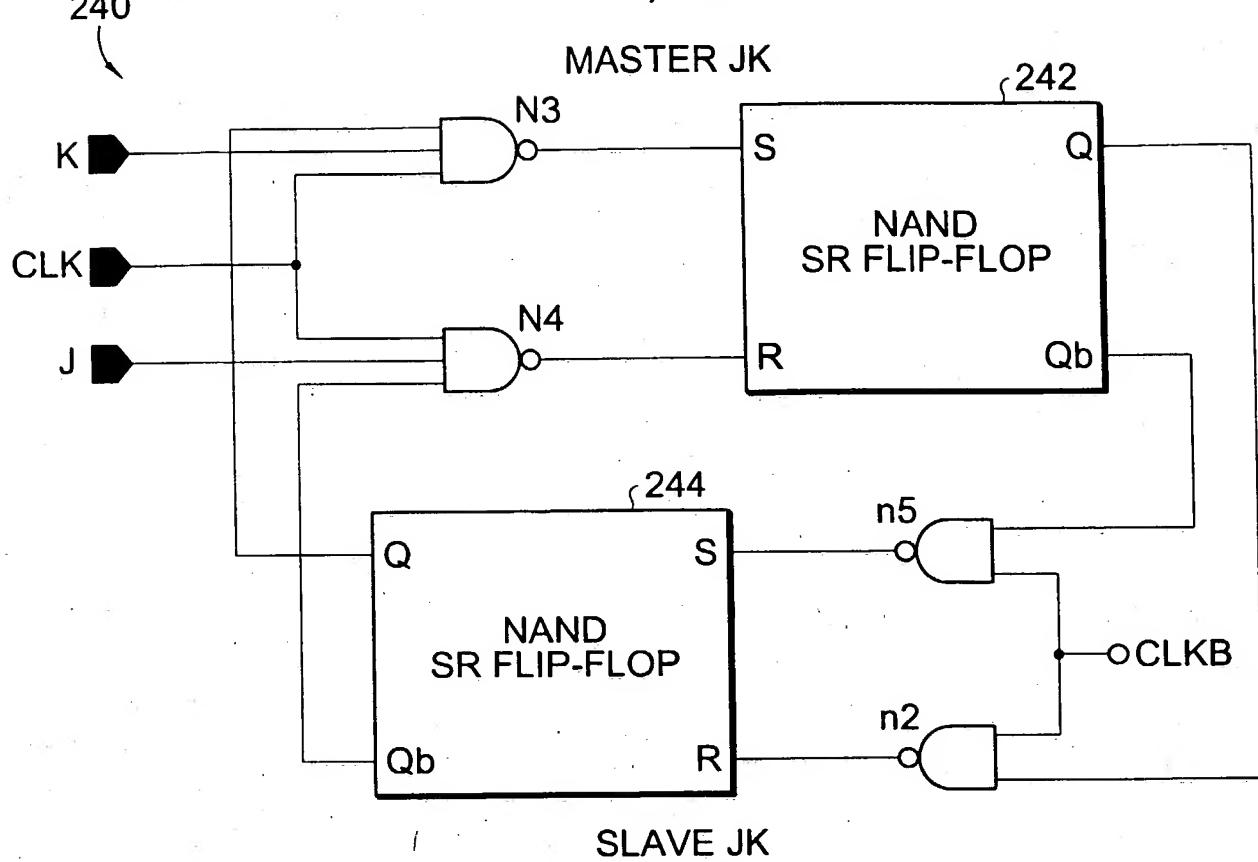


Fig. 24

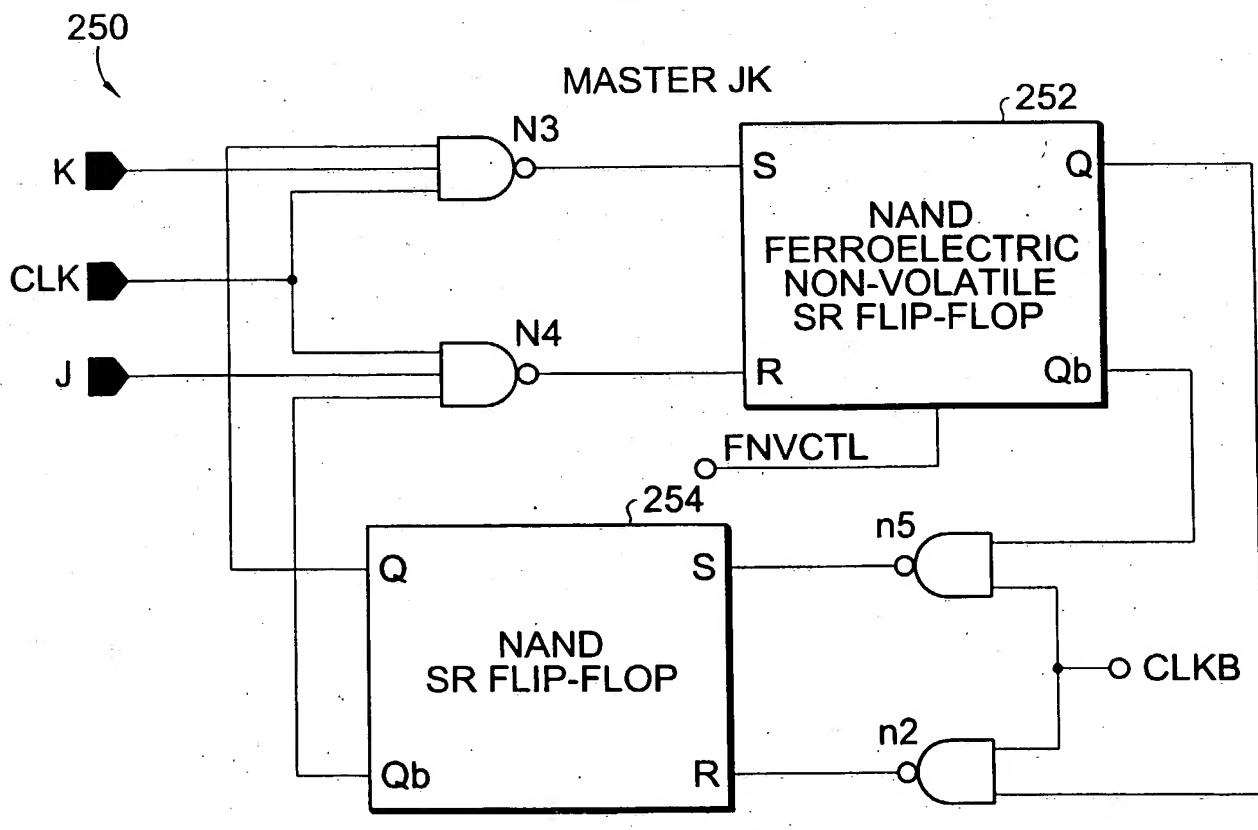


Fig. 25

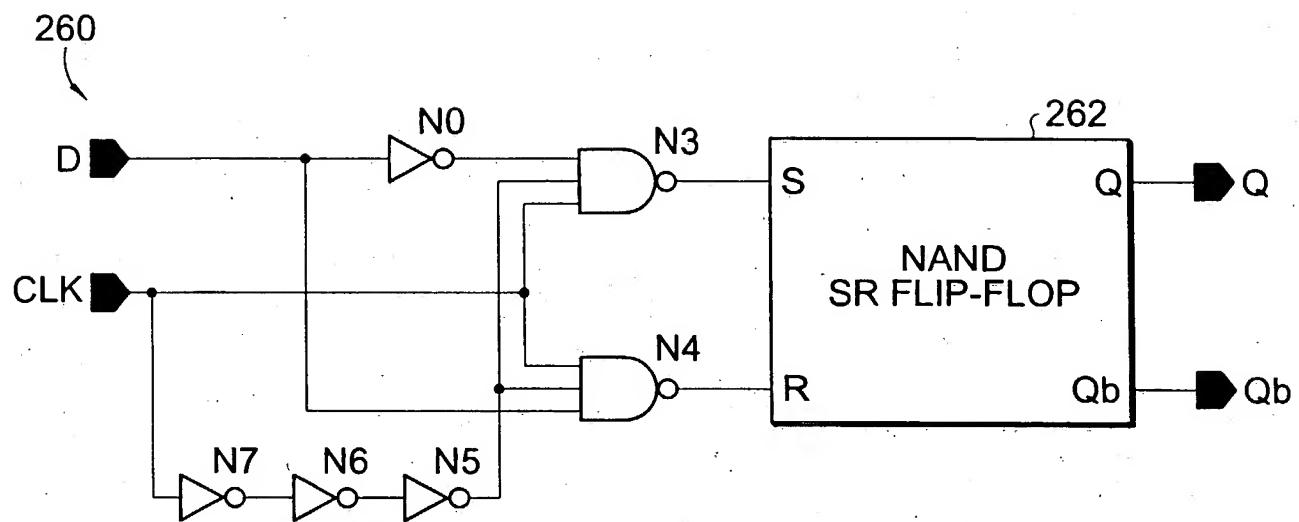


Fig. 26

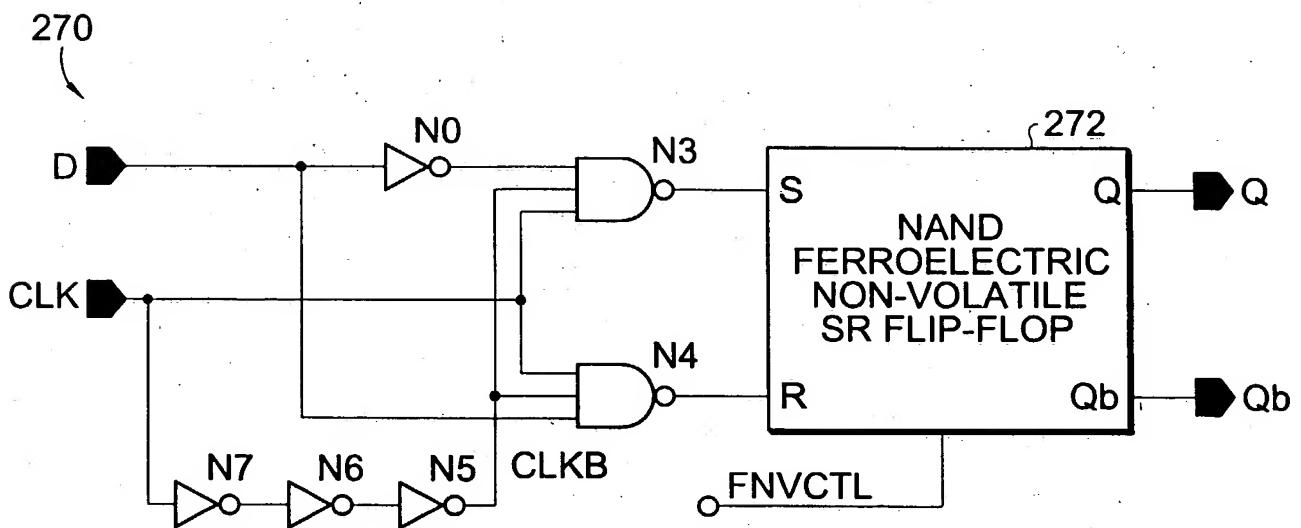


Fig. 27

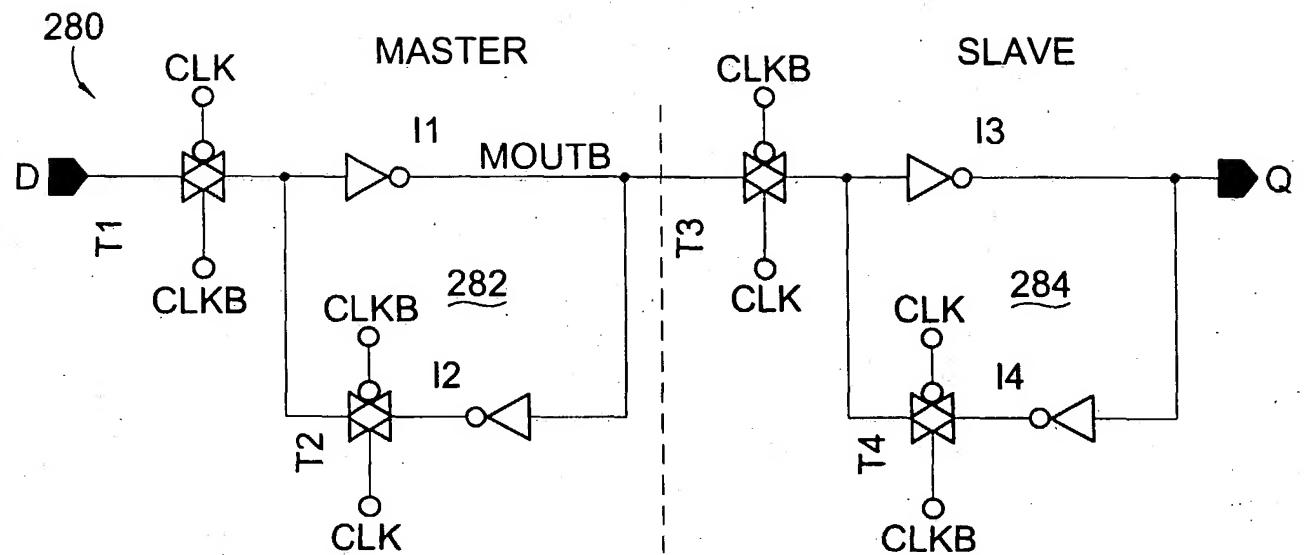


Fig. 28

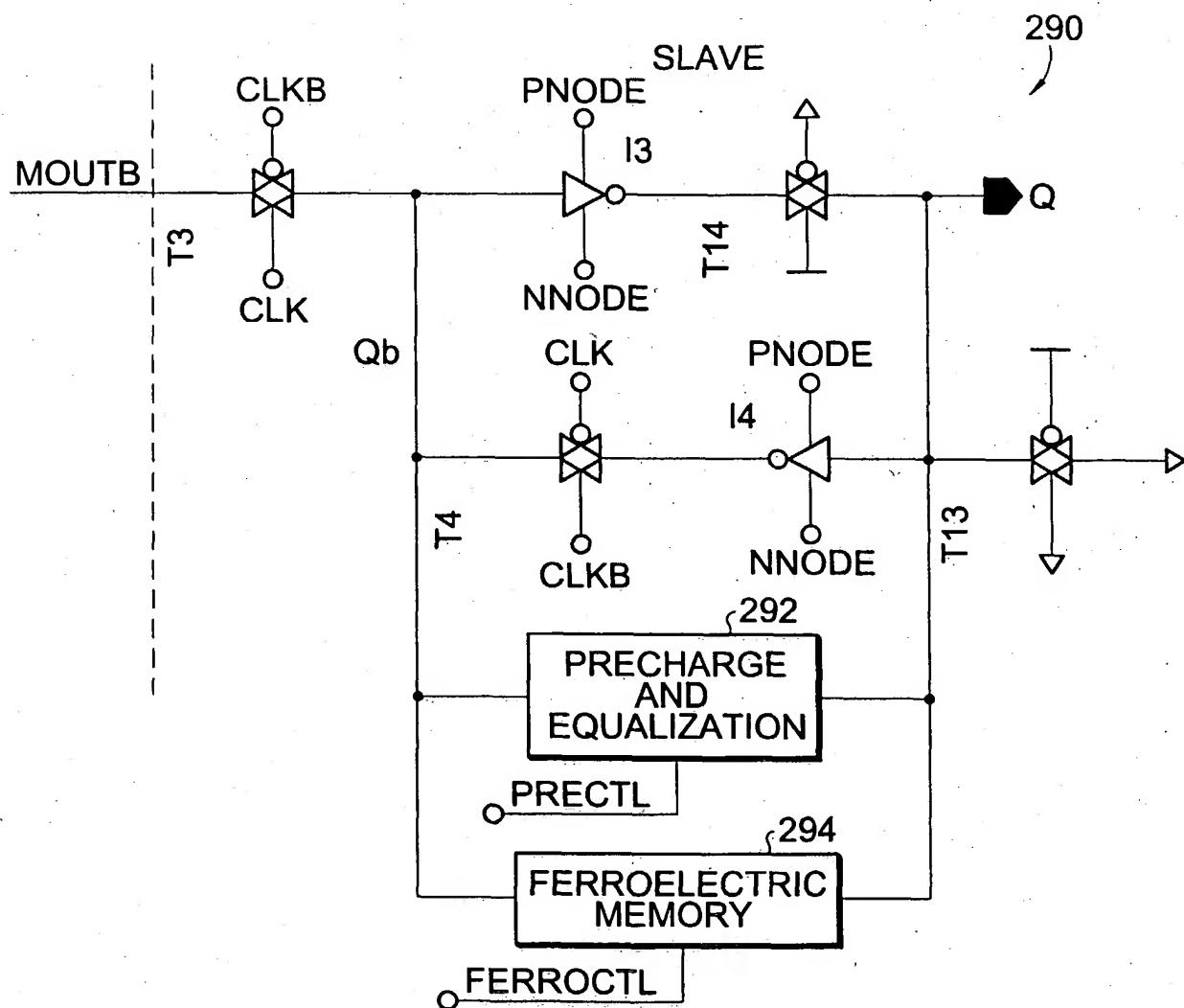


Fig. 29A

290'

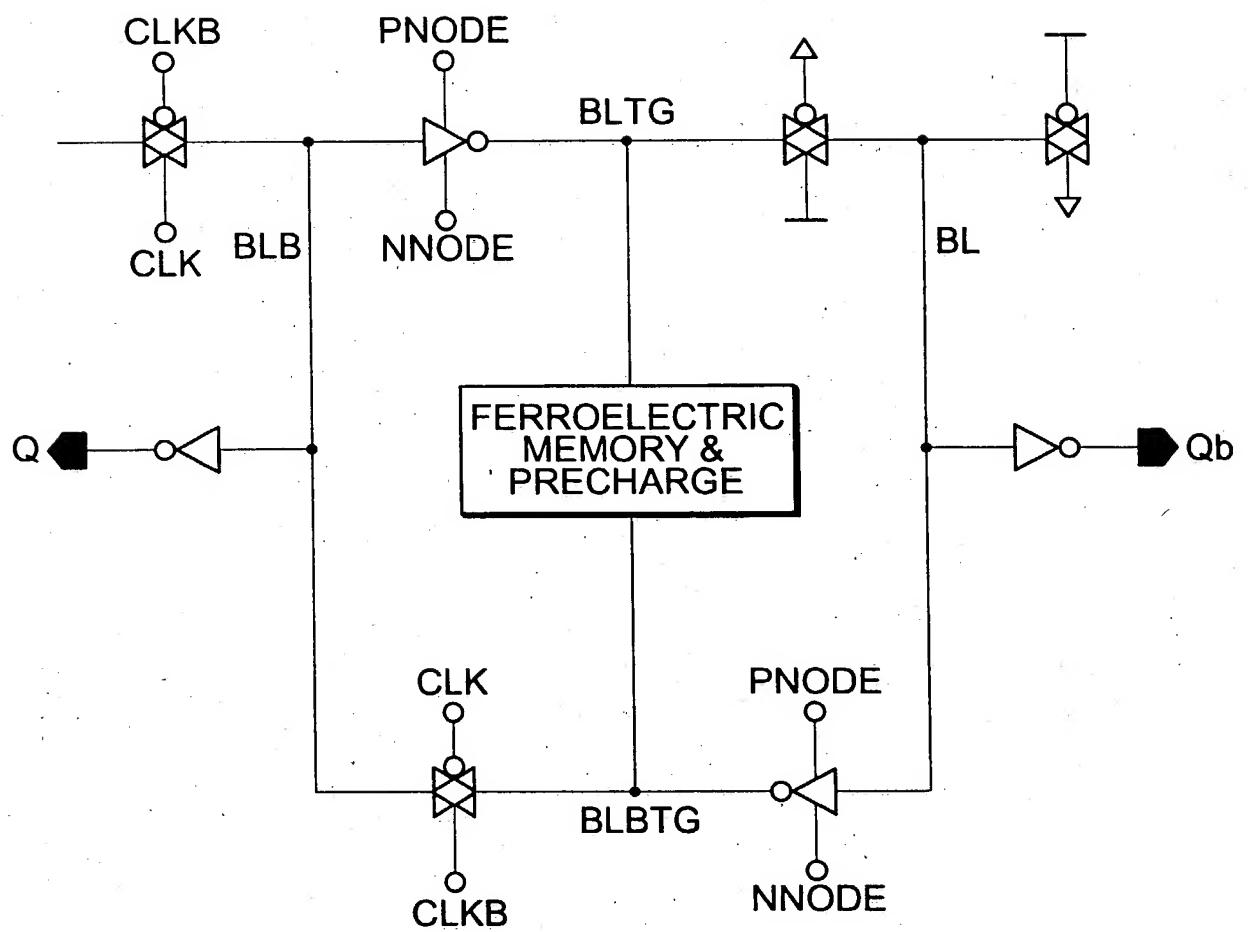


Fig. 29B

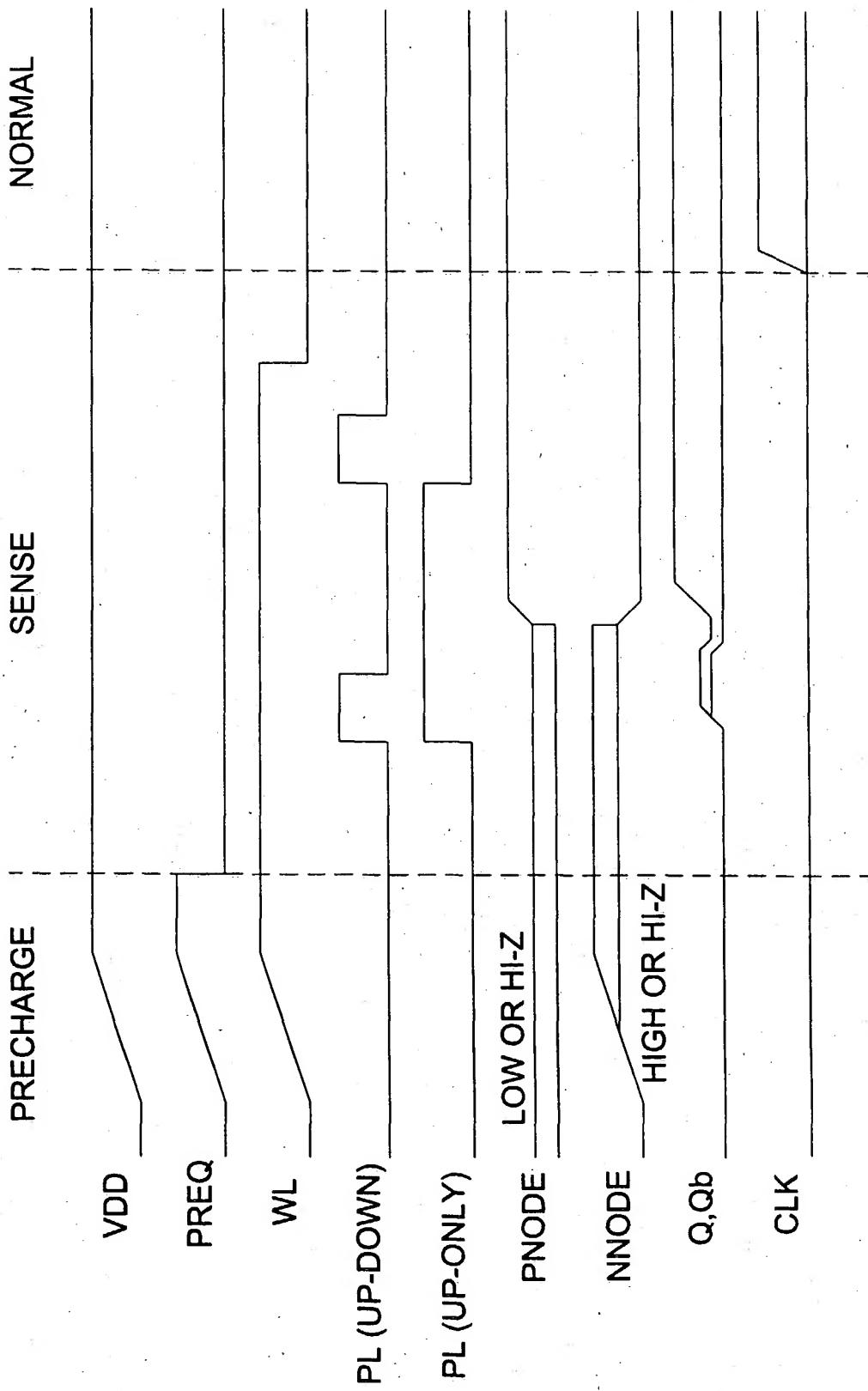
TRANSMISSION GATE BASED NON-VOLATILE D FLIP-FLOP POWER-UP TIMING  
NON-VOLATILE SLAVE

Fig. 30A

## TRANSMISSION GATE BASED NON-VOLATILE D FLIP-FLOP POWER-DOWN TIMING

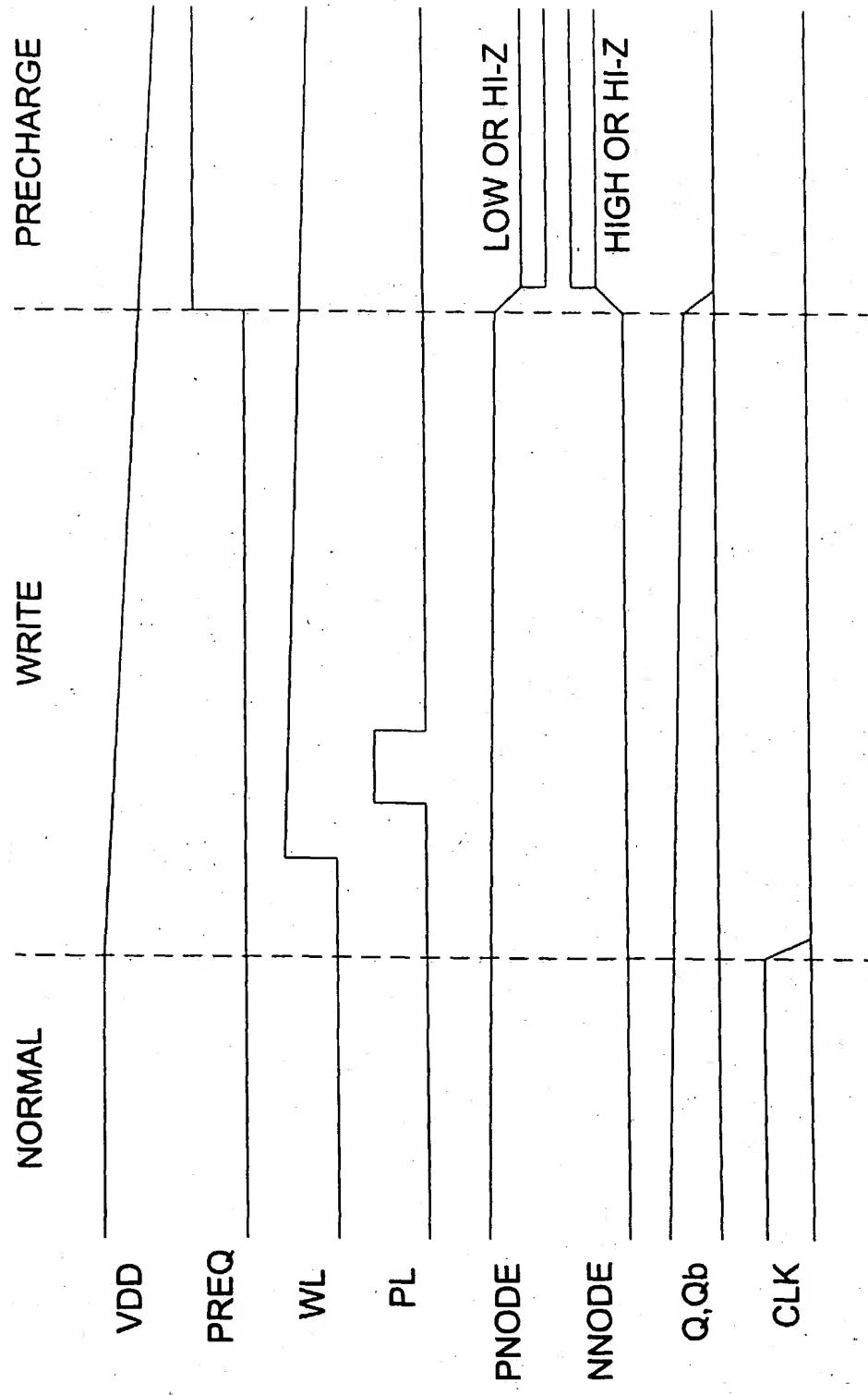


Fig. 31A

300°

TRANSMISSION GATE BASED NON-VOLATILE D FLIP-FLOP POWER-UP TIMING  
NON-VOLATILE SLAVE

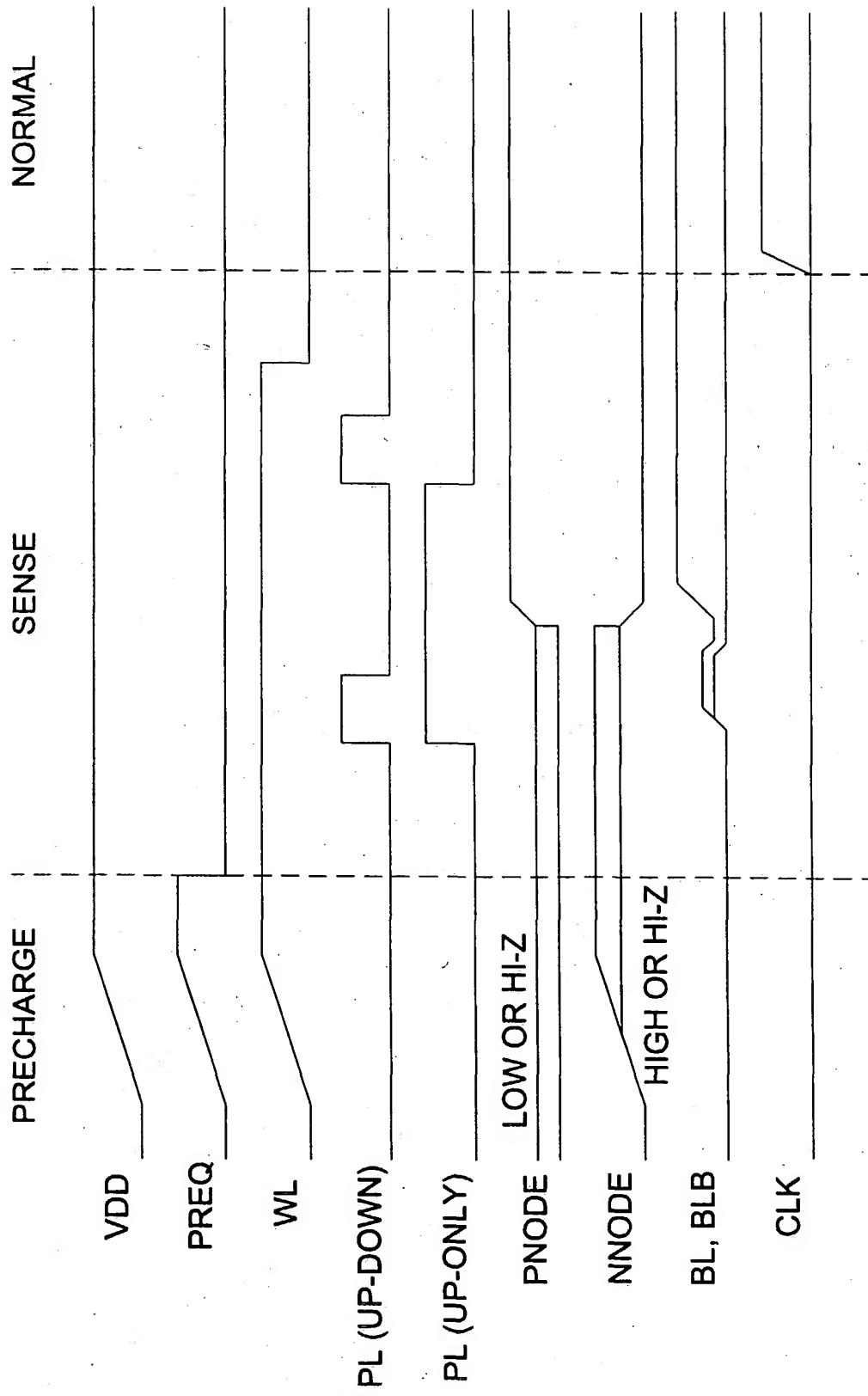


Fig. 30B

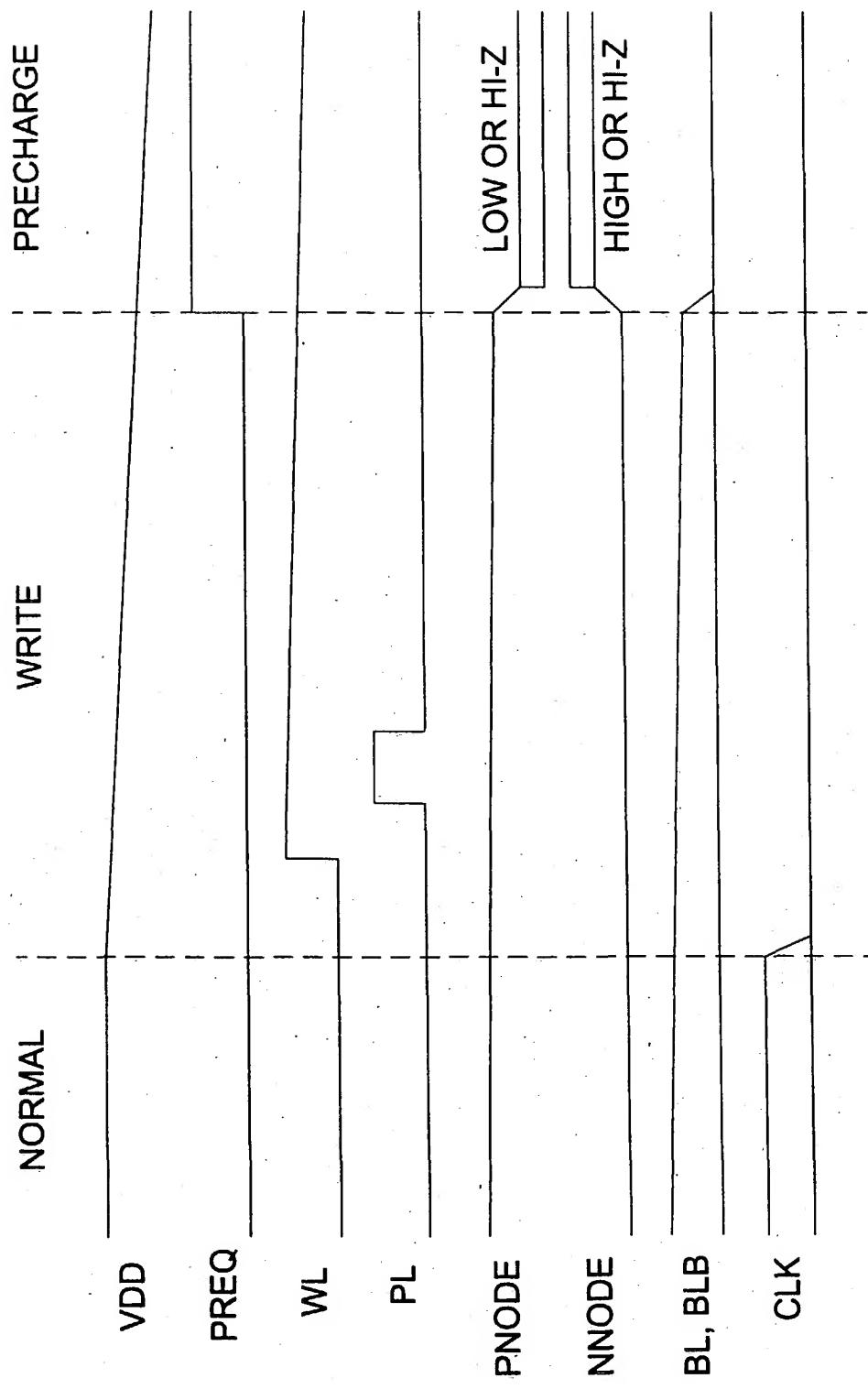


Fig. 31B

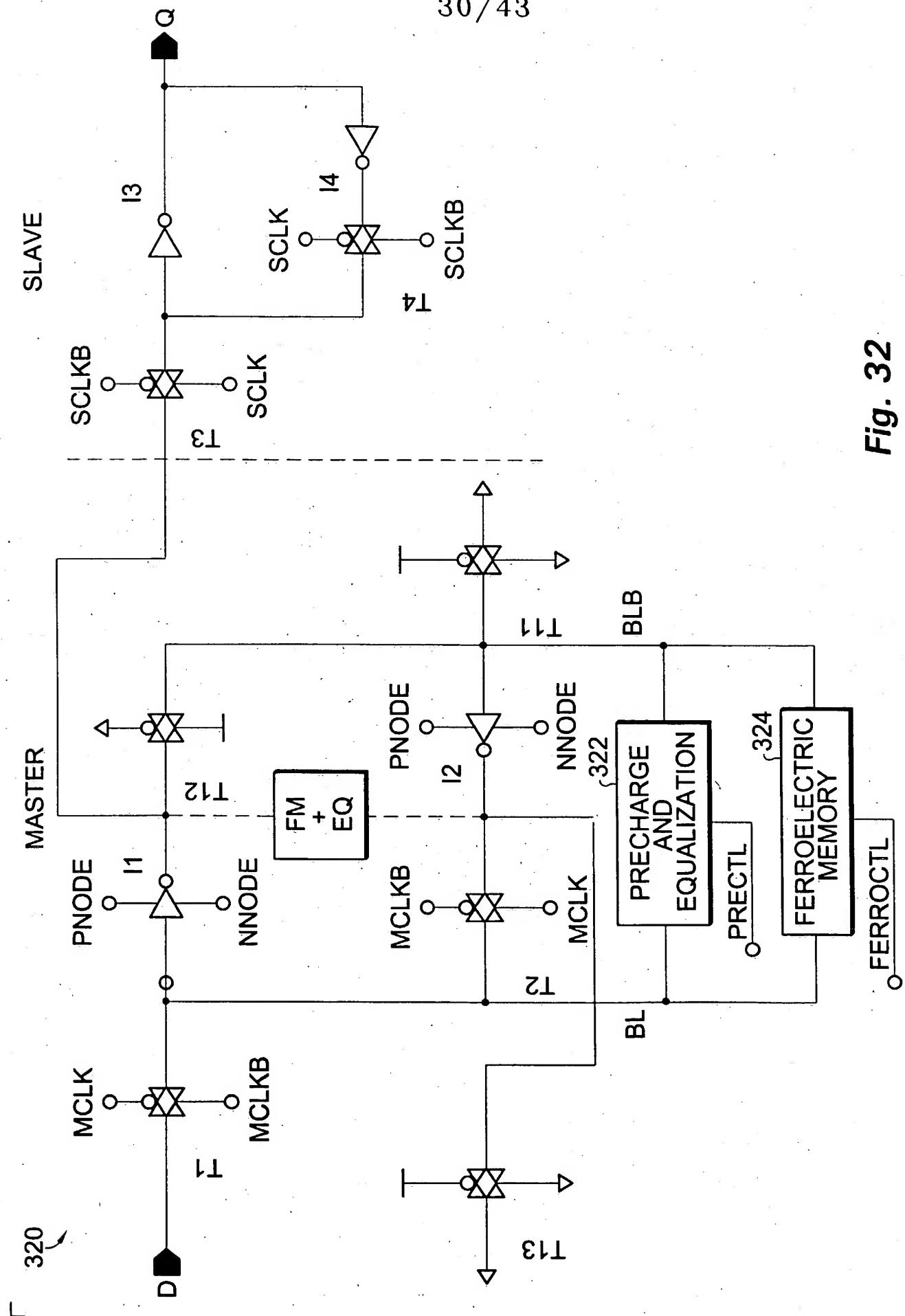


Fig. 32

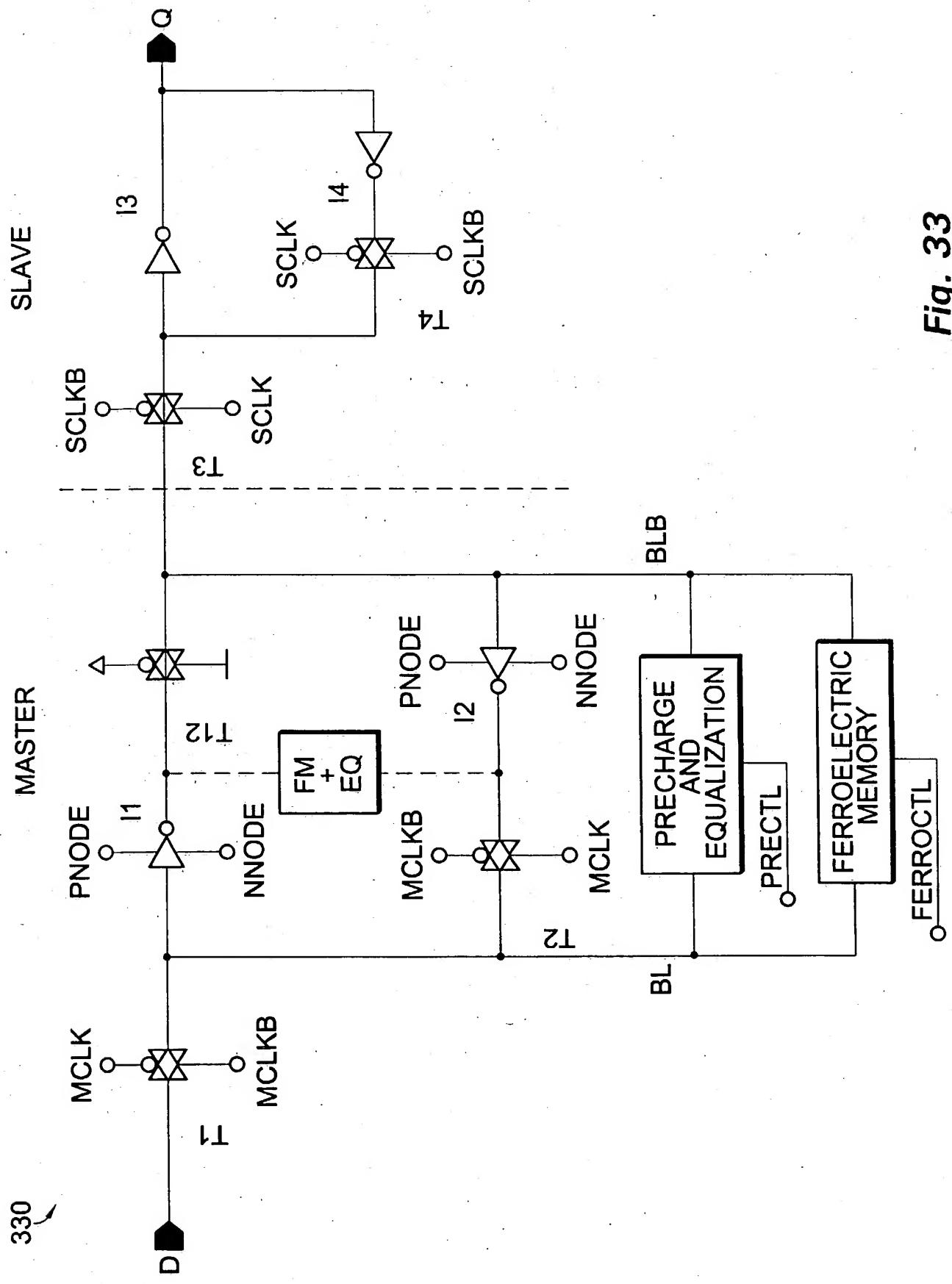
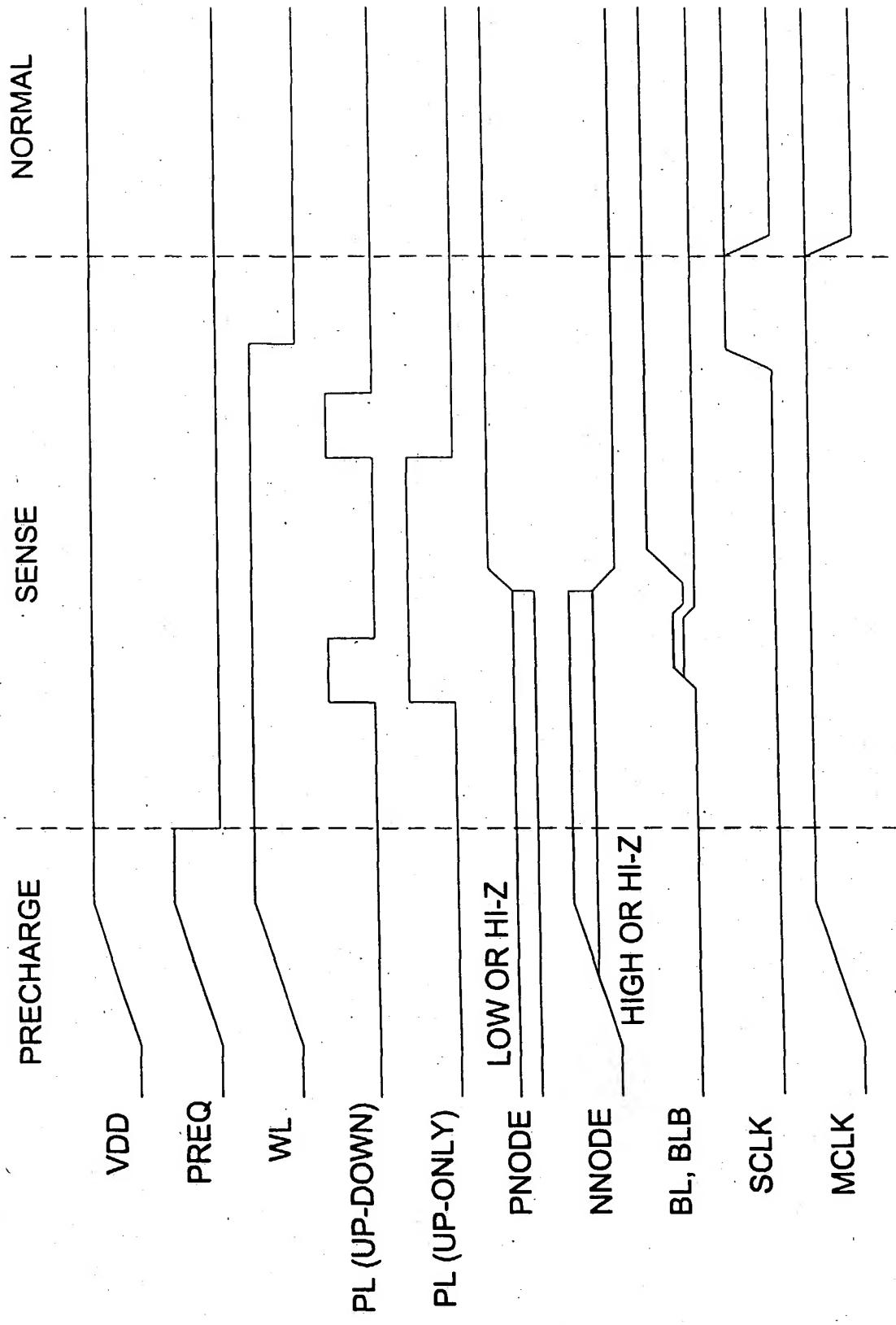


Fig. 33

TRANSMISSION GATE BASED NON-VOLATILE D FLIP-FLOP POWER-UP TIMING  
NON-VOLATILE MASTER

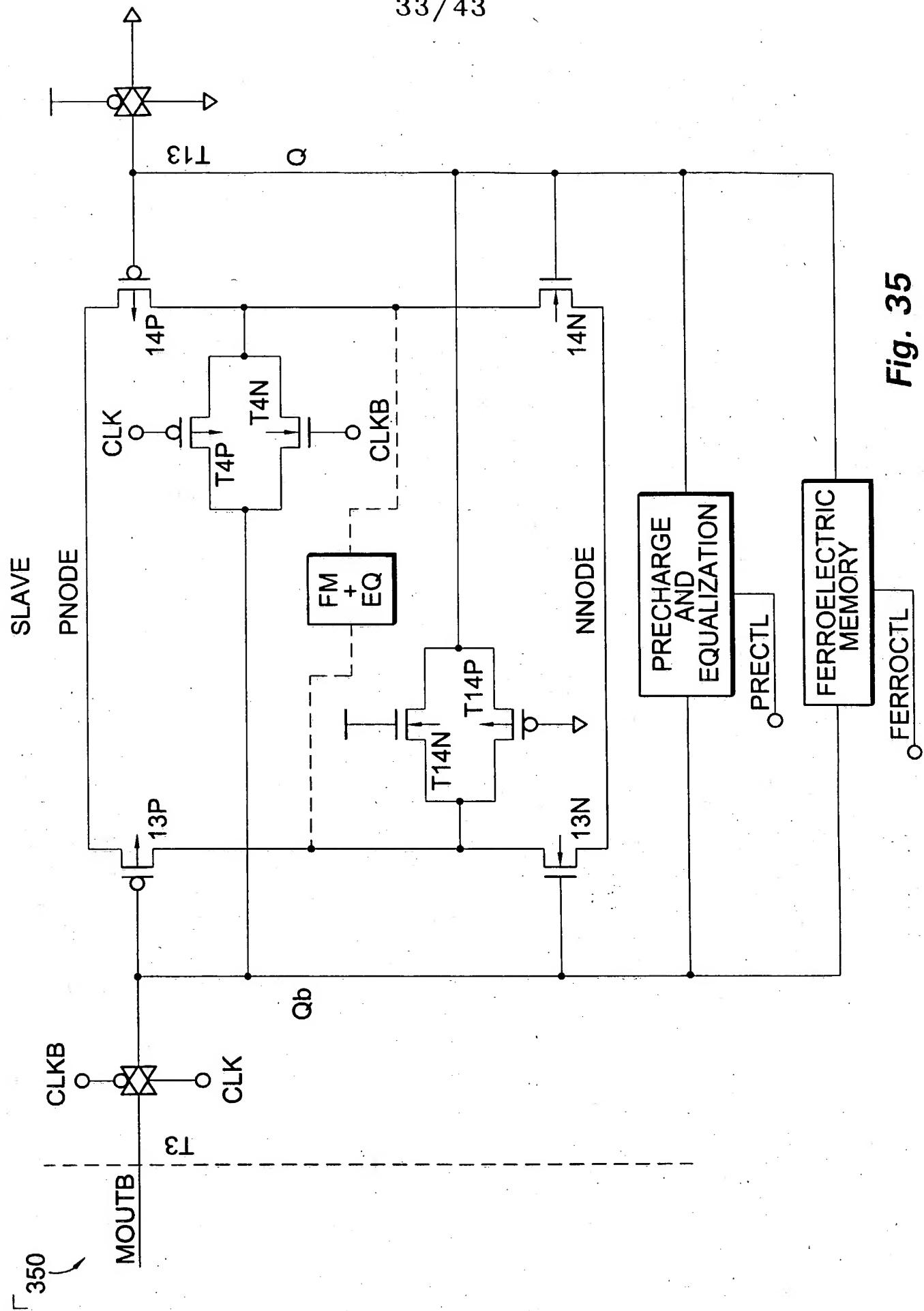


Fig. 35

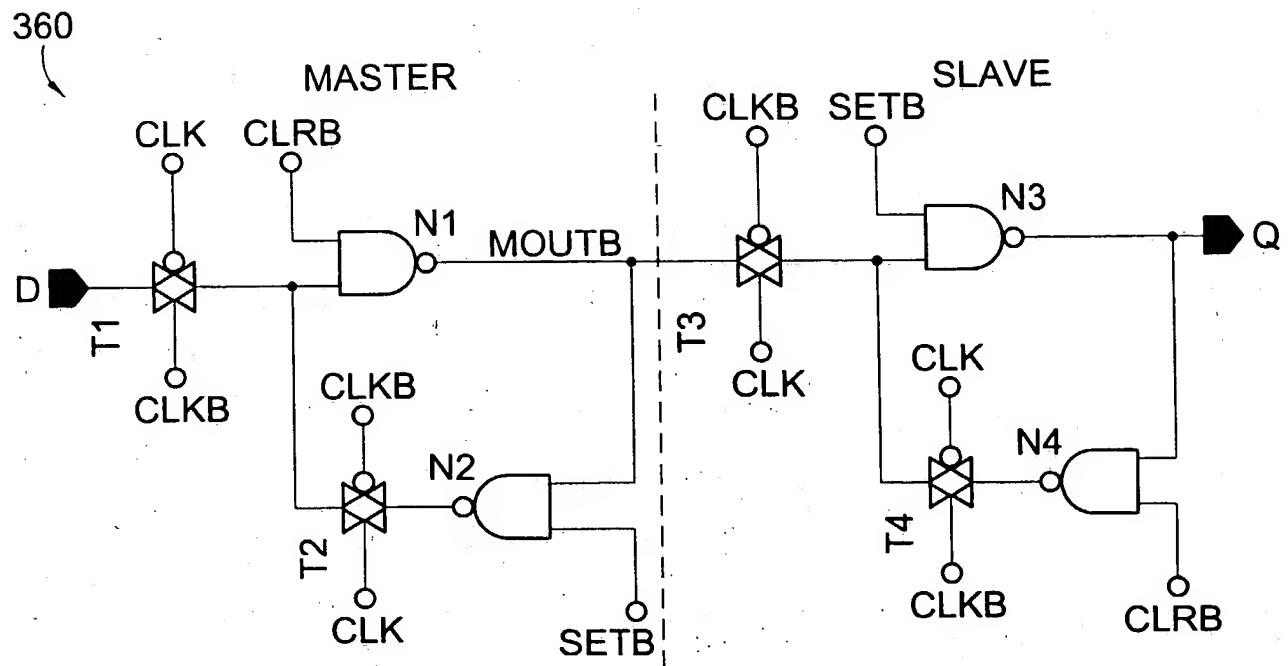


Fig. 36

370

CLK	SETB	CLRB	Q
X	0	0	1
X	0	1	1
X	1	0	0
X	1	1	QLAST
↑	1	1	D

Fig. 37

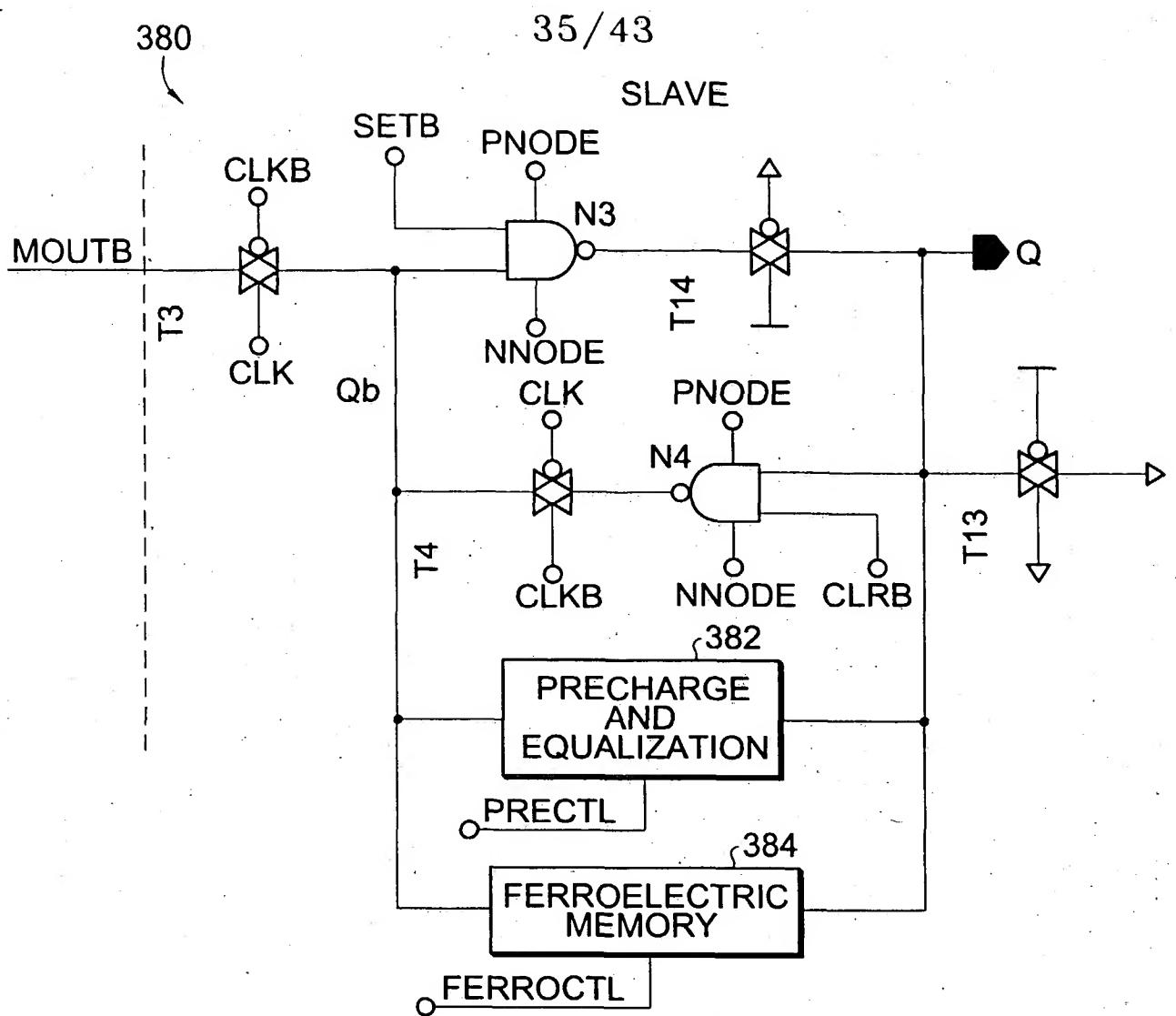


Fig. 38A

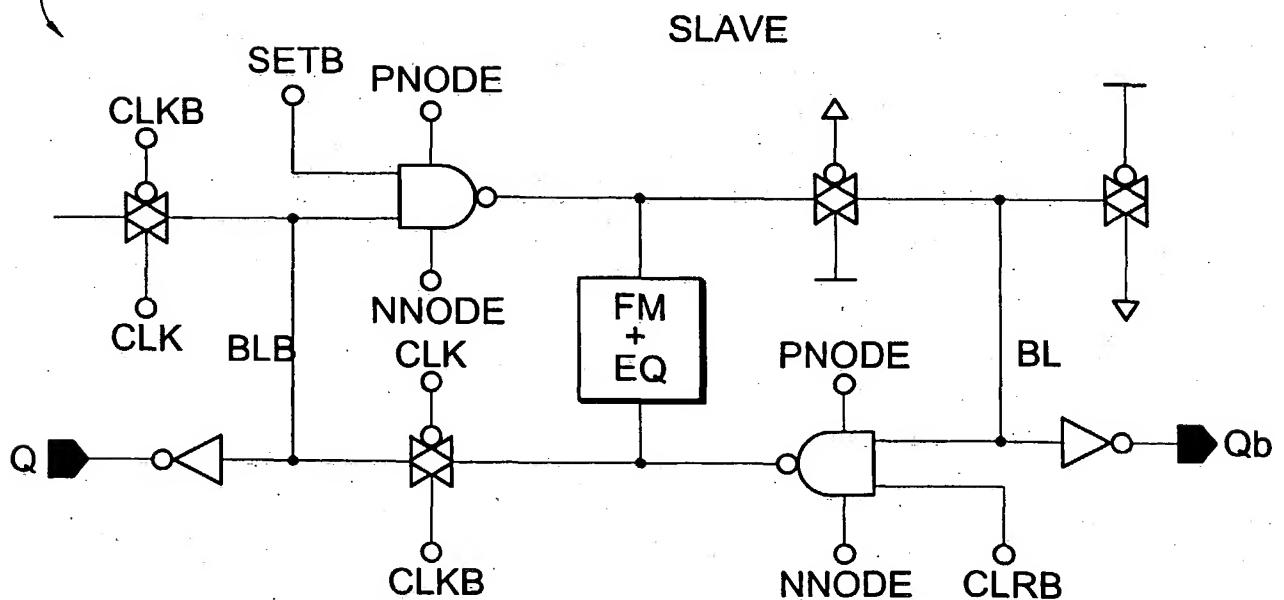


Fig. 38B

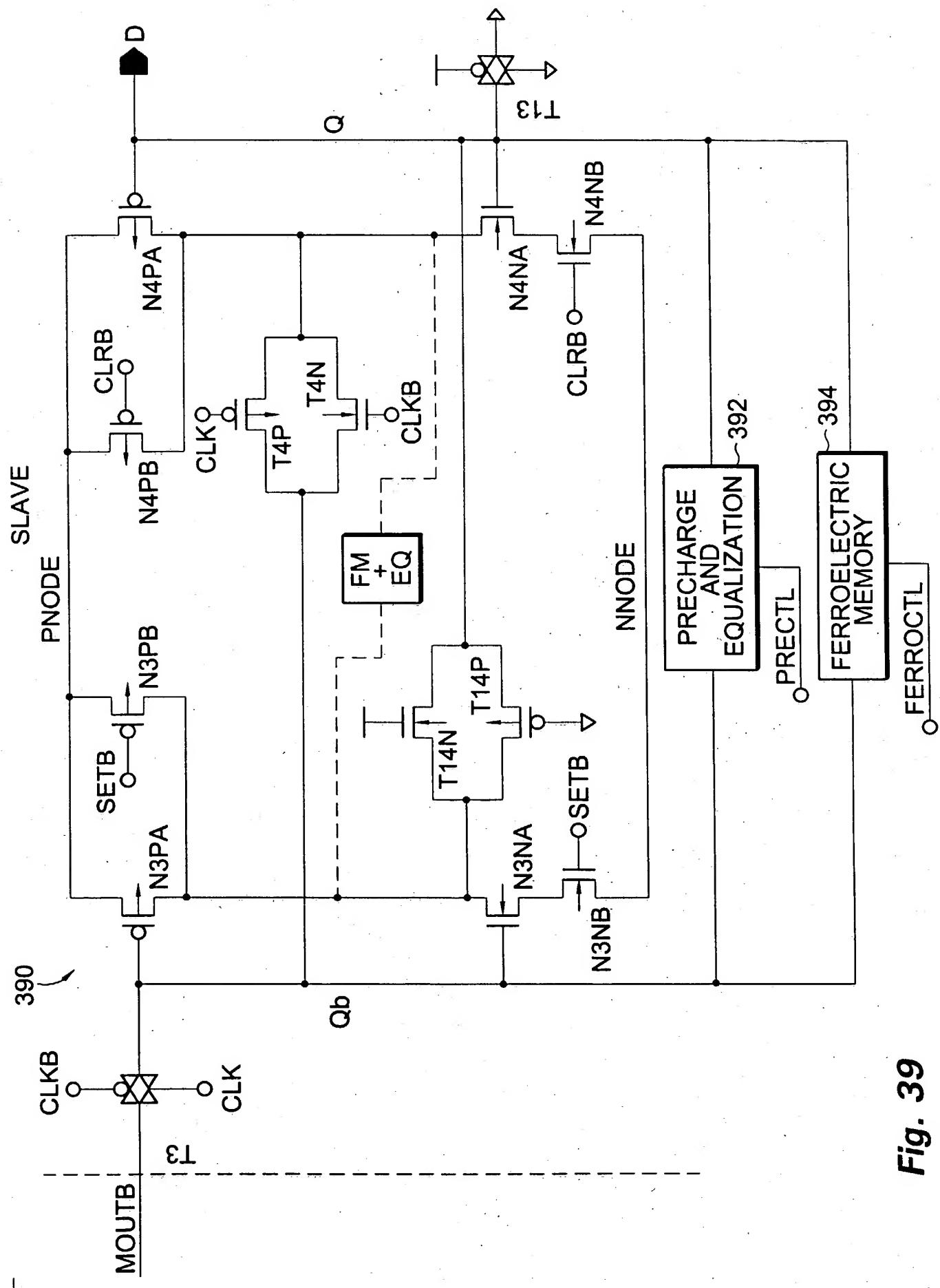


Fig. 39

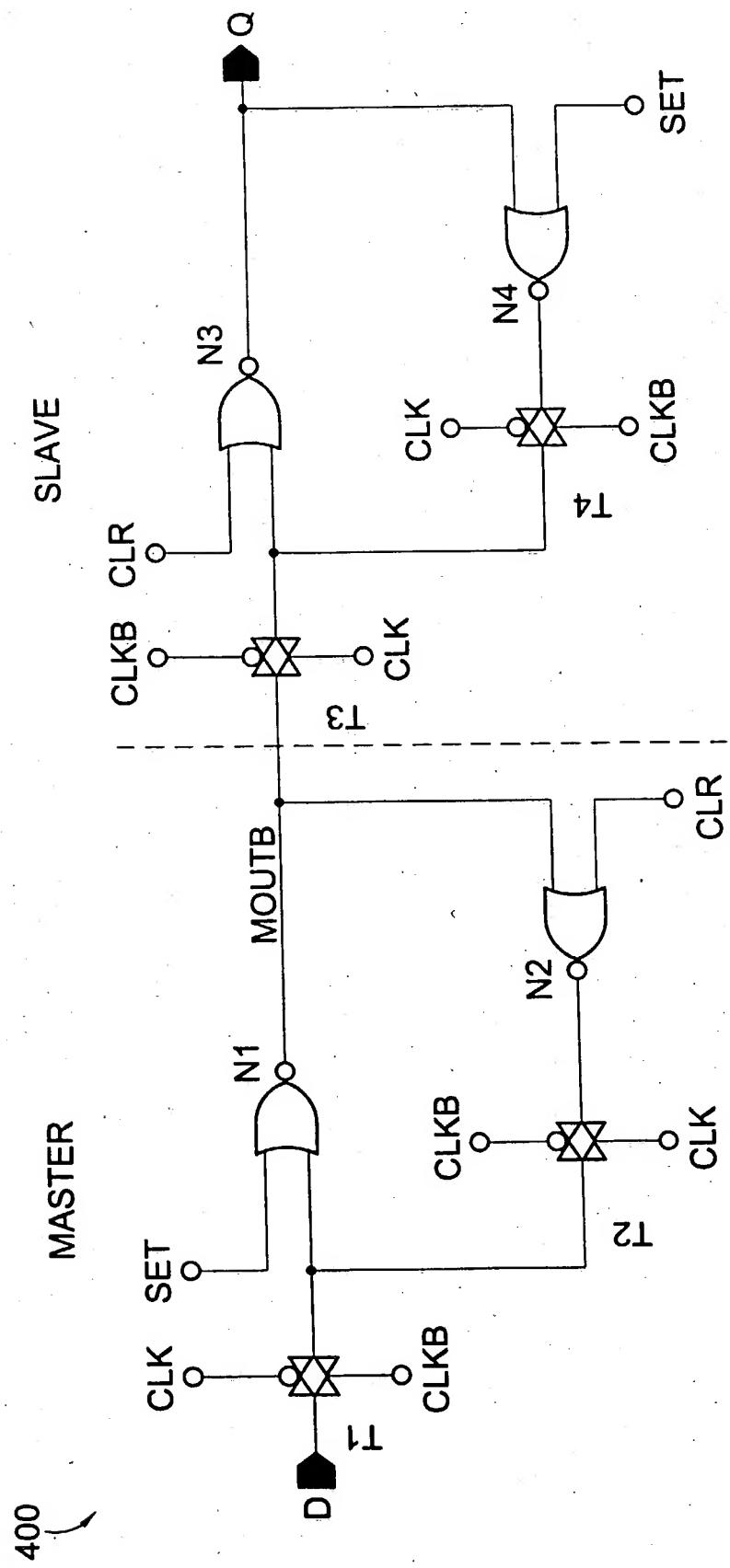


Fig. 40

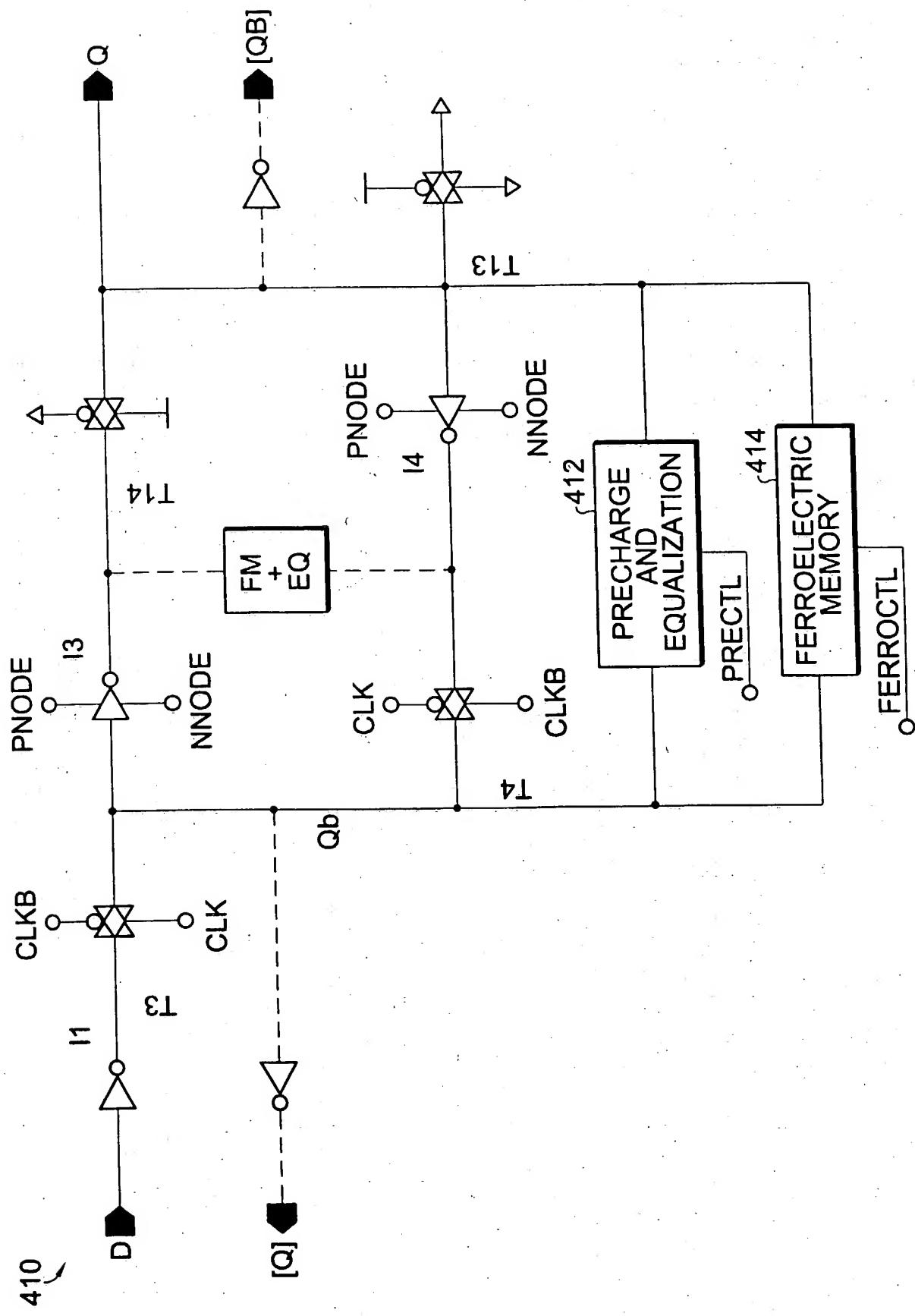


Fig. 41

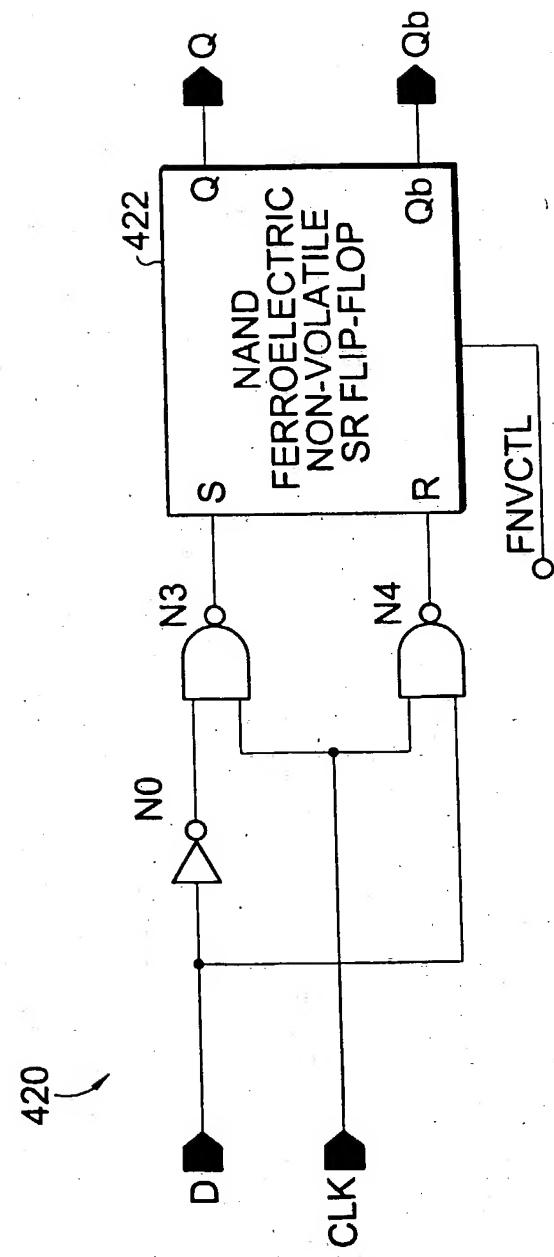


Fig. 42

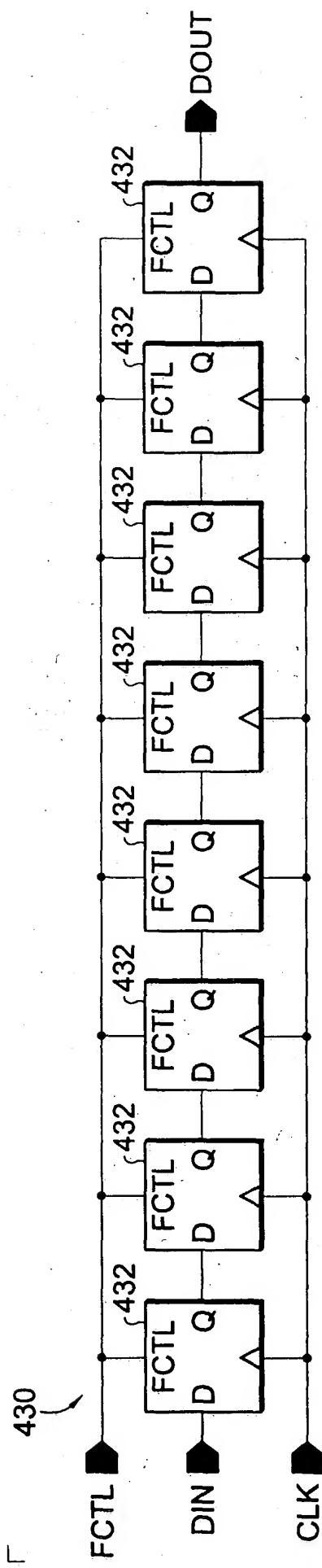


Fig. 4.3

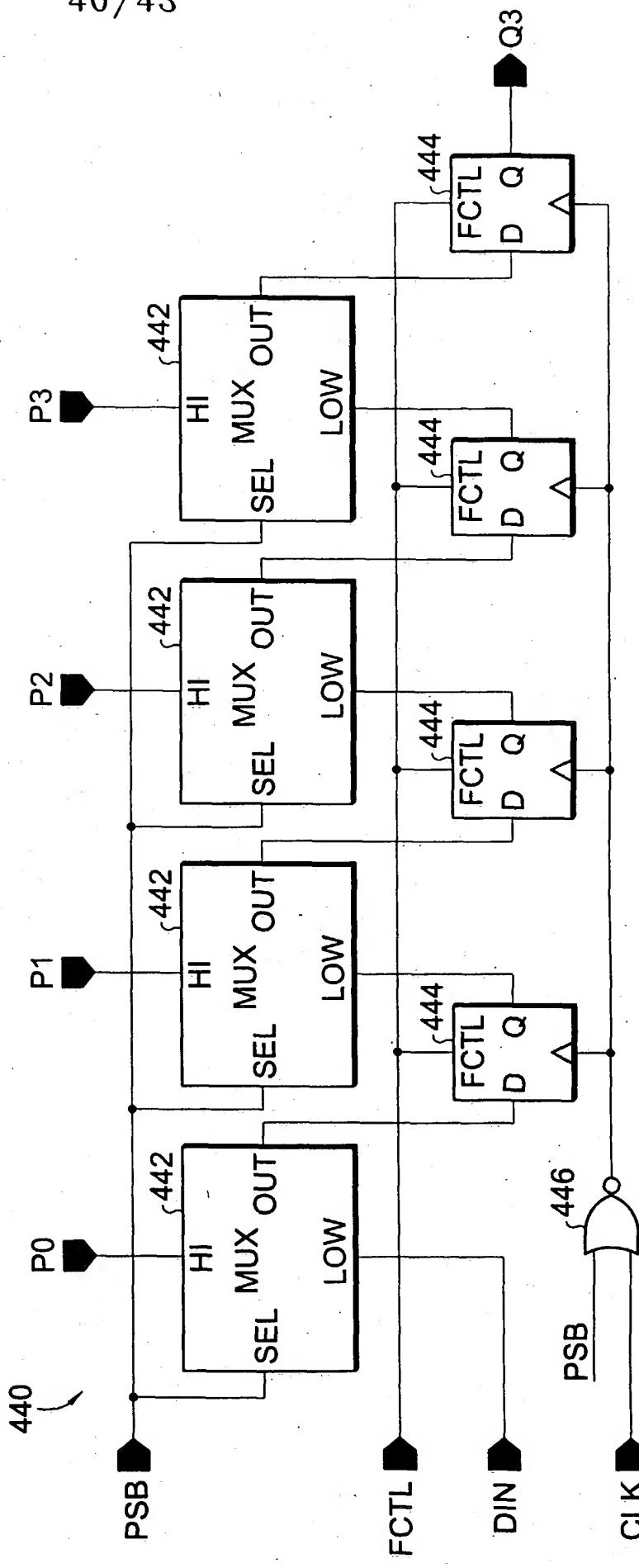


Fig. 4.4

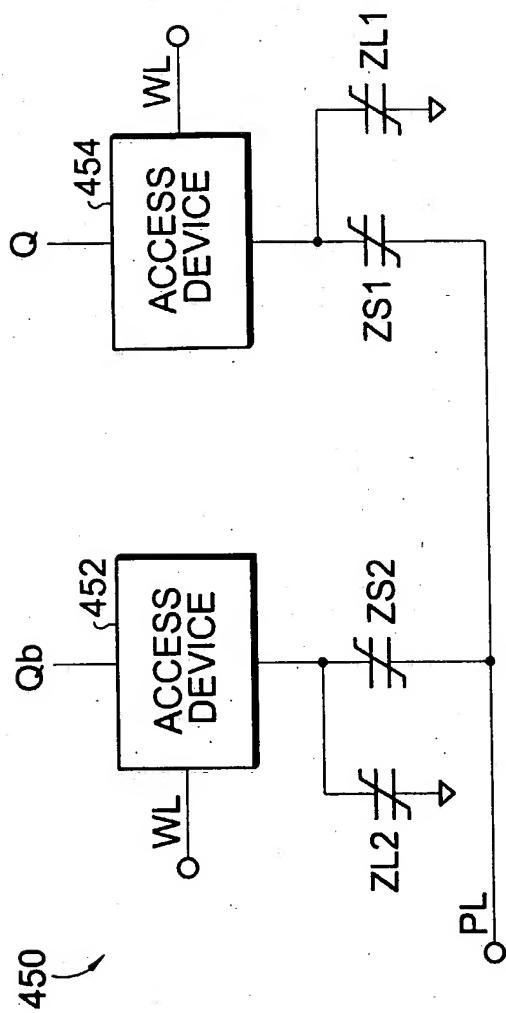


Fig. 45

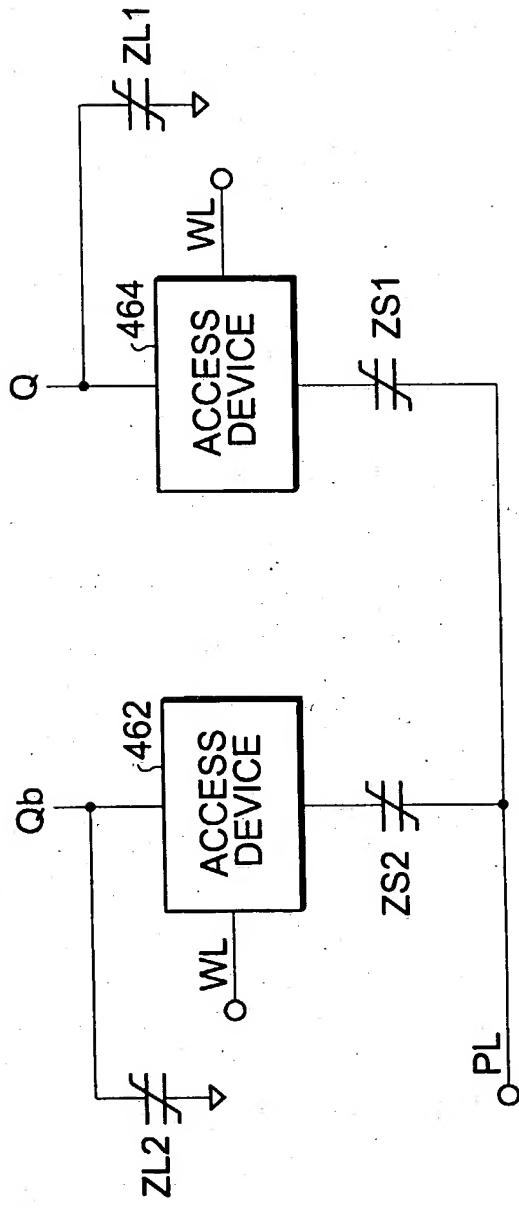


Fig. 46

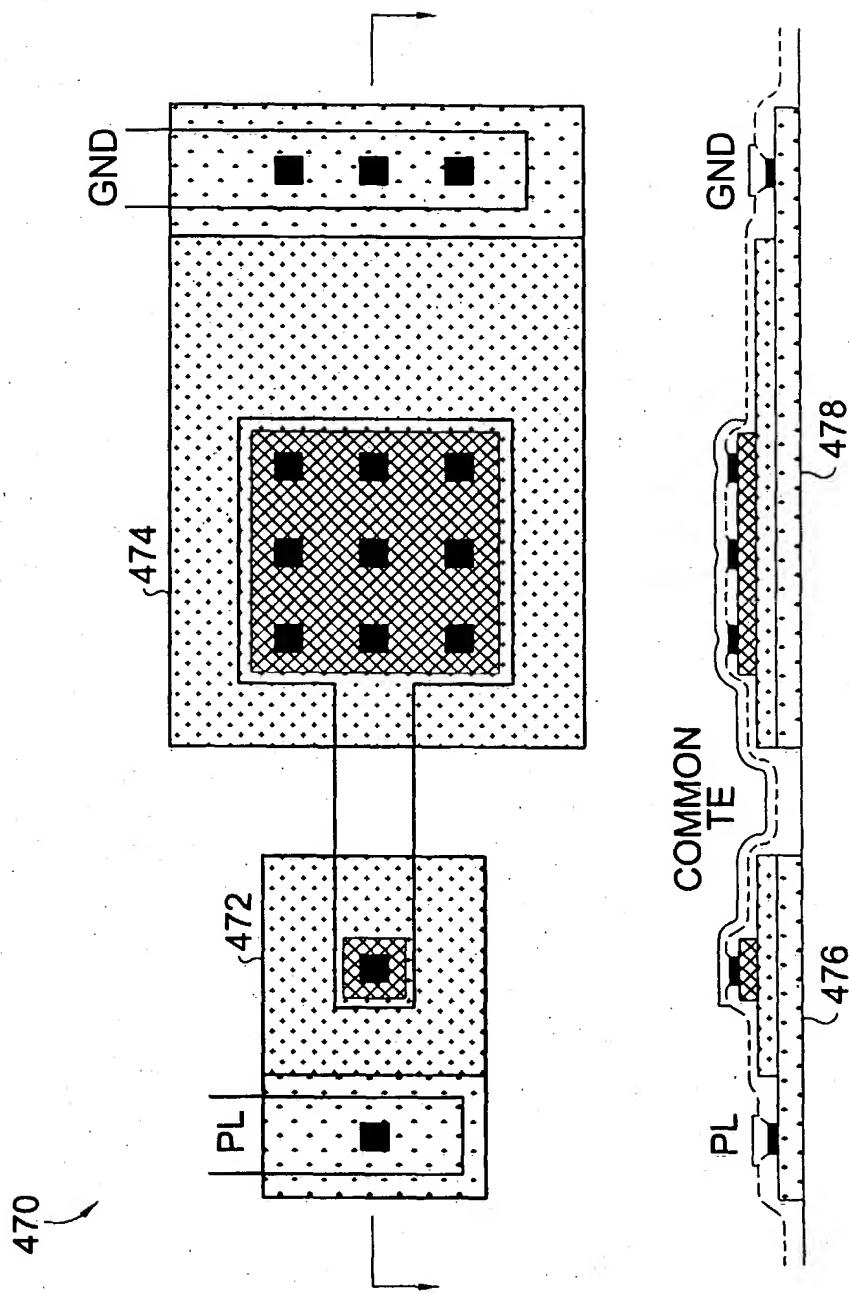


Fig. 47

- METAL
- CONTACT
- INTER-LAYER DIELECTRIC
- TOP ELECTRODE
- FERROELECTRIC
- BOTTOM ELECTRODE

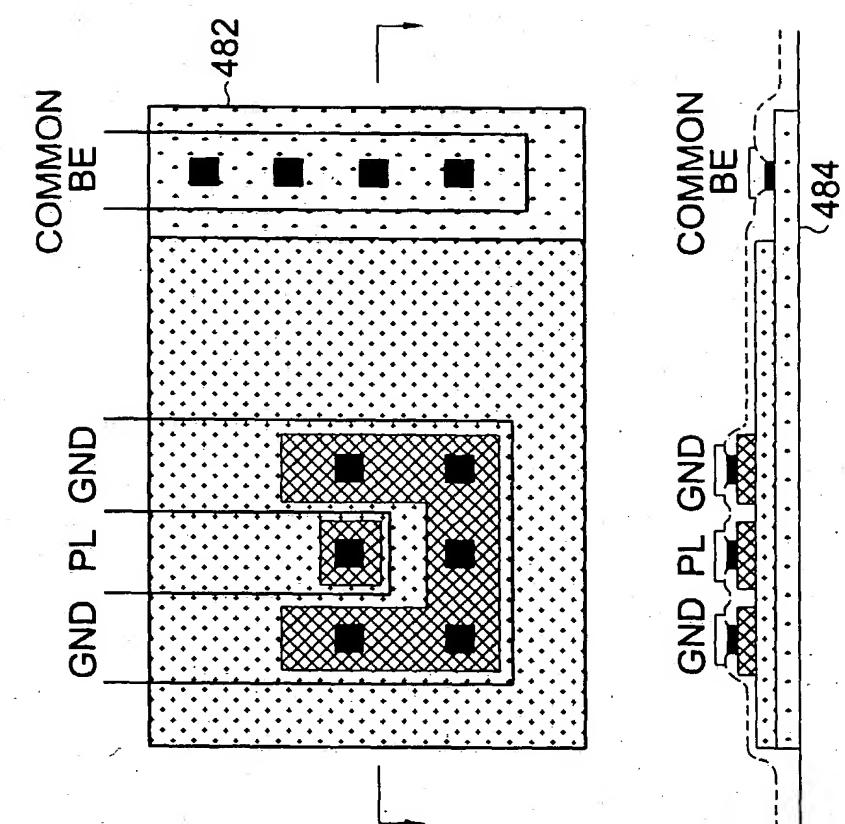


Fig. 48

- METAL
- CONTACT
- INTER-LAYER DIELECTRIC
- TOP ELECTRODE
- FERROELECTRIC
- BOTTOM ELECTRODE